DOCUMENT RESUME

ED 053 303 VT 013 349

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TITLE	Expansion of Vocational-Technical School Programs to Accommodate Highway Safety Manpower Requirements. Final Report.
INSTITUTION	Ohio State Univ., Columbus. Center for Vocational and Technical Education.
SPONS AGENCY	Department of Transportation, Washington, D.C. National Highway Safety Bureau.
PUB DATE	Aug 71
NOTE	98p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	Consultants, *Demonstration Programs, *Educational Needs, Instructional Materials, *Manpower Development, Manpower Needs, Program Development, Program Evaluation, *Safety Education, Skilled Occupations, Surveys, Technical Education, Technical Occupations, Transportation, *Vocational Education
IDENTIFIERS	Highway Safety Manpower Requirements

ABSTRACT

With the primary objective of expanding vocational and technical education programs to accommodate highway safety manpower requirements, this project focused on (1) identifying what portion of highway safety manpower needs fall within the realm of technical and skilled occupations, (2) determining the extent to which educational institutions are providing training, (3) documenting materials and resources available to educators, and (4) outlining a strategy for vocational and technical planners to use in expanding and developing occupational programs in highway safety. A survey was conducted to locate established vocational and technical programs, to identify leading educational personnel, and to collect curriculum material. Selected educators served as consultants in analyzing and interpreting the data and in making recommendations. Specific conclusions were: (1) The lack of data is probably the most crucial roadblock to developing programs, (2) Highway safety manpower of a technical nature is most effectively developed at the post secondary level, and (3) Certain knowledge and skills common to all or many highway safety occupations may warrant the development of a core curriculum for these training programs. (Author/GEB)

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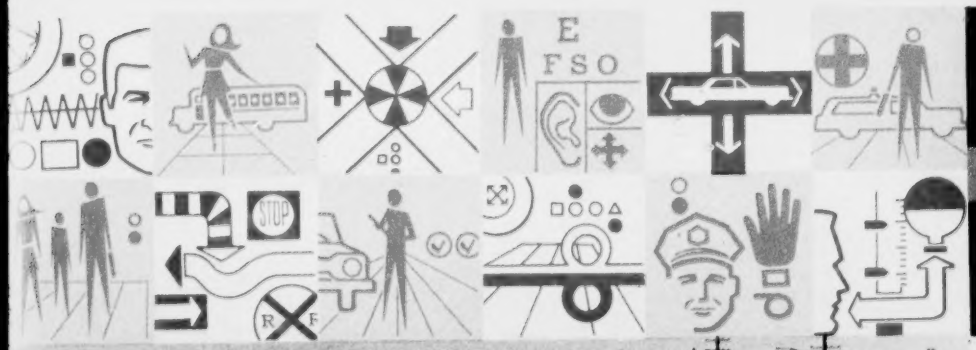
EXPANSION OF VOCATIONAL-TECHNICAL SCHOOL PROGRAMS TO ACCOMMODATE HIGHWAY SAFETY MANPOWER REQUIREMENTS

FINAL REPORT



EXPANSION OF VOCATIONAL-TECHNICAL SCHOOL PROGRAMS TO ACCOMMODATE HIGHWAY SAFETY MANPOWER REQUIREMENTS

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AUGUST, 1971

Final Report
Contract Number FH-11-7507

The material in this publication was prepared pursuant to a contract with the U.S. Department of Transportation, National Highway Traffic Safety Administration. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgement in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent those of the National Highway Traffic Safety Administration.

ACKNOWLEDGMENTS

The purpose of this project was to enlist the support of state and local vocational and technical education agencies and institutions in the further development of existing training programs related to highway safety and to stimulate the development of additional programs in new and emerging occupations related to the field.

The project staff reviewed recommendations growing out of experiences and data resulting for the conduct of the project. Specific recommendations were made concerning future training priorities, appropriate training agencies, development of training materials, intra-agency representation, and resource allocations.

Recognition is due the project staff, the National Highway Safety Administration, U.S. Department of Transportation, and all vocational and technical educators who contributed to the project. Special acknowledgment is given to Paul F. Hill, National Safety Council, and Harland E. Samson, The University of Wisconsin, who served as consultants to the project. Appreciation is expressed to the cooperating organizations and agencies for their many contributions to the success of the project.

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Principal Investigator

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INTRODUCTION

I. Statement of the Problem

Background: The dynamic growth of the nation's highway and transportation system and the great increase of motor vehicle transportation has resulted in an increased awareness of the need for highway safety in this country. With approximately 111 million drivers operating a slightly larger number of motor vehicles, the cost of motor vehicle accidents in the United States for the year 1970 approached 13 billion dollars. More than 55 thousand Americans were killed and several times that number were seriously injured. In some cases, the public's interest and concern over these highway losses has resulted in legislative action.

The problem of providing highway safety seems to stem, in part, from the lack of trained personnel. Three recent national surveys, *Safety Specialist Manpower* (Booz, Allen and Hamilton, Inc., 1968), *Safety Manpower Survey of Local Governments in the United States* (Powell, Wright, and Spratt, 1970), and *The Feasibility of Establishing Highway Safety Manpower Development and Research Centers at University-Level Institutions* (Stanford Research Institute, 1968), have identified a number of highway safety occupations or functions in which there now exists a manpower shortage, or where a shortage will likely occur in the near future. These studies also indicate that the majority of these jobs and/or functions are at a skilled or technical (sub-baccalaureate) rather than professional (baccalaureate) level. However, these studies do not take into consideration that the competency and level of proficiency of thousands currently employed in highway safety need upgrading. Also, these studies do not focus on the feasibility of formal highway safety education and training experiences being provided by community-junior colleges, technical institutes, area vocational schools, and comprehensive high schools.

An unchallenged, and somewhat universally accepted, feeling exists that skilled, technical, and professional personnel are essential to the advancement of a particular effort or enterprise. The primary sources through which people receive formal occupational preparation are the colleges, universities, community-junior colleges, technical institutes, and area vocational education schools. At the present time, there exists only a limited number of public educational institutions offering sub-baccalaureate-level occupational training programs closely related to highway safety manpower needs. Most manpower development activities have made limited contributions to alleviating manpower demands for highway safety.

The magnitude of occupational preparation necessary to meet the needs of highway safety will require the combined resources of federal, state, and local agencies and institutions. Each state must have a manpower development mission for highway safety occupations to (1) identify the task requirements, (2) identify the number of trained persons needed in the geographical area to be served, (3) develop short- and long-range plans to meet these needs, and (4) implement and/or revise occupational programs in the nation's educational system to carry out these plans.

The Problem: Occupational training for jobs requiring less than a baccalaureate degree is needed on a massive scale to meet existing and emerging needs in highway safety. This project focused on identifying what portion of highway safety manpower needs fall within the realm of technical and skilled occupations, on revealing the extent to which educational institutions are providing training in highway safety to alleviate the manpower needs, on documenting the quantity and quality of materials and resources in highway safety occupational education available to vocational and technical educators, and on outlining a strategy for vocational and technical planners to use in expanding and developing occupational programs in highway safety.

Project Scope and Limitations

The Expansion of Vocational-Technical School Programs to Accommodate Highway Safety Manpower Requirements Project was designed to enlist the support of state and local vocational and technical education agencies and institutions in updating existing training programs related to highway safety and to stimulate the development of additional programs in new and emerging occupations related to the field.

Limitations in the conduct of the project included the following:

1. The occupational preparation programs inventoried by this project were limited to those which state directors of vocational education and community colleges knew to be provided by public education school systems. An additional list of programs relating to highway safety occupational training was obtained from the U.S. Office of Education, the American Association of

Junior Colleges, the American Vocational Association, and the American Medical Association. These additional programs were also inventoried for the same purpose.

2. The scope of highway safety, with the exception of school bus training, was limited to the 16 highway safety standards promulgated by the National Highway Traffic Safety Administration (NHTSA) which serve as guides to overall state highway safety programs. Manpower needs will change as new developments and guidelines in highway safety are formulated at the national and state levels.
3. Technical and skilled manpower requirements determined in selected highway safety areas by *Safety Specialist Manpower* (Booz, Allen and Hamilton, Inc., 1968) and *Safety Manpower Survey of Local Governments in the United States* (National Association of Counties Research Foundation, 1970) served as general guidelines.
4. The scope of vocational and technical education was limited to the 1968 Vocational Education Amendments and interpretations of this act, such as the *Vocational Education Annual Report* (May, 1970), at the national level, following legislative enactment.

Project Objectives

The specific objectives of this project were:

1. To provide the National Highway Traffic Safety Administration with information concerning the nature and scope of public vocational and technical education programs directed toward meeting highway safety manpower needs.
2. To present current and projected highway safety manpower needs to key vocational-technical educators participating in the project and to their administrative counterparts.
3. To recognize and encourage the continuation and expansion of training programs in occupations supporting the field of highway safety by involving key vocational-technical educators.
4. To develop plans and strategies for initiating additional training programs in existing, new, and emerging occupational areas relating to highway safety. These plans include consideration of such things as students, staff, facilities, equipment, and instructional materials.
5. To recommend priorities for the establishment and development of additional training programs.
6. To identify ways in which a portion of the resources from the National Highway Traffic Safety Administration and the 1968 Vocational Education Act might most effectively be applied to meet training objectives of mutual interest to public education and highway safety.

Summary

Providing safety on America's highways has emerged as an important national challenge. Without competent manpower to provide highway safety, property damage and the number of traffic deaths and injuries can only increase.

This project was designed as one step in the effort to meet these manpower needs in highway safety. By identifying occupational education programs, involving competent occupational educators from various areas of highway safety in developing guidelines for local program development, and obtaining timely recommendations for future national action, this report is intended to serve as a basic foundation for vocational and technical education's future in the preparation of manpower for the highway safety field.

EXPANSION OF VOCATIONAL-TECHNICAL SCHOOL PROGRAMS TO ACCOMMODATE HIGHWAY SAFETY MANPOWER REQUIREMENTS

REVIEW OF LITERATURE

A vast number of publications and speeches were reviewed in the planning and conduct of the project. These materials were analyzed to assess the present "state of the art" in highway safety training, to assist in formulating specific approaches to solving the problem in highway safety, and to provide a comprehensive collection of existing materials in the field. Selected summarized reviews are presented here to acquaint the reader with some of the most significant sources of information bearing on the area of highway safety occupations.

The Highway Safety Problem Literature

In a 1970 publication, Arthur D. Little, Inc. provided an assessment of the present understanding of traffic safety, with regard to the manner and degree to which various factors contribute to traffic accidents and their resulting loss and to the methods for preventing or reducing their loss. This study, *The State of the Art of Traffic Safety*, entailed a review of pertinent American and foreign literature and discussions with persons and agencies active in traffic safety research.

The current legislation underlying all highway safety activities at the federal, state, and local levels is contained in two laws: The National Traffic and Motor Vehicle Safety Act of 1966 and the Highway Safety Act of 1966.

The National Traffic and Motor Vehicle Safety Act, Public Law 89-563, promulgated on September 9, 1966, has as its main purpose the reduction of traffic accidents, deaths, and injuries. Congress has determined that it is necessary to establish safety standards for motor vehicles and equipment in interstate commerce, to undertake and support necessary safety research and development, and to expand the national driver register.

Section 106 (a) states that the Secretary of Transportation is authorized to make grants to nonprofit organizations and state and interstate agencies who will conduct research, testing, development, and training programs.

Issued the same day, Public Law 89-564, the Highway Safety Act of 1966, requires that each state have a highway safety program (approved by the Secretary of Transportation) designed to reduce traffic accidents, injuries, and property damage. Such programs, conforming to standards promulgated by the secretary, are to improve driver performance (including driver education, driver testing to determine proficiency to operate motor vehicles, and physical and mental examinations), driver licensing, and pedestrian performance. Among the standard requirements set by the secretary for highway programs in each state are provisions for an effective record system of accidents (including injuries and post-accident deaths), accident investigations to determine the probable causes, registration, operation, inspection, highway design and maintenance (including lighting, markings, and surface treatment), traffic control, vehicle codes and laws, emergency services, and surveillance of traffic for detection and correction of high or potentially high accident locations.

Other significant reviews within the area of the highway safety problem included the first three *Annual Reports of The Department of Transportation* and the sections relating to "Activities Under the Highway Safety Act of 1966" (U.S. Government Printing Office). A number of selected references from the National Safety Council's monthly publication *Traffic Safety* were also reviewed.

The Manpower Problem Literature

Four basic categories of highway safety manpower were identified in *The Feasibility of Establishing Highway Safety Manpower Development and Research Centers at University-Level Institutions* (Stanford Research Institute, 1969). These are (1) research manpower, post-doctoral; (2) research manpower, doctoral; (3) professional manpower; and (4) technical manpower. Each category encompasses occupations with different levels of skills, responsibility, and educational requirements.

Representatives of the first category are research administrators and traffic safety researchers of many disciplines. Multidisciplinary traffic safety researchers comprise most of the manpower in the second category.

Professional manpower includes traffic engineers, traffic safety program managers, driver education teachers, automotive engineers, driver education supervisors, and those in similar occupations.

Some examples of occupations within the technical manpower category are motor vehicle inspector, driver license examiner, law enforcement officer, accident investigator, accident analyst, accident data processing specialist, emergency medical specialist, traffic court personnel, and instructors within these specialities.

The educational requirements for the first two groups are the Ph.D. or M.S. degree; for the professional manpower, the M.S. or B.S. degree, and

supplementary short courses required to upgrade practitioners at this level. The last category, the primary focus of this project, requires a junior college associate degree or non-degree short courses given in vocational or technical schools, high school vocational programs, or on-the-job apprentice programs.

A number of studies and surveys related to manpower development in highway safety have been conducted in the last few years. The Office of Safety Manpower Development (NHTSA) has sponsored several studies to identify training, manpower needs, and education requirements in the highway safety field. Most noteworthy is a survey of safety specialist manpower needs at the state level, published in September, 1968, by Booz, Allen and Hamilton, Inc. This report identified safety specialist manpower requirements in all states and projects this need ahead 10 years on a year-by-year basis. It consists of a comprehensive inventory of all existing state highway safety positions and those projected for the future. To provide a comparative basis, all position titles were translated into 36 composite occupations based on similar training requirements, e.g., state highway safety director, traffic engineer, school bus driver, driver education teacher, and accident investigator. A total of 17 of these occupations were interpreted to require less than a baccalaureate degree for job entry.

Subsequently, NHTSA issued a report in October, 1968, containing estimates of the number of specialists needed to fill all local (county and city) highway safety positions and projecting these estimates for five and 10 years.

A study of highway safety manpower needs was conducted for NHTSA during FY 1969 by the National Association of Counties Research Foundation. This study, *Community Action Program for Traffic Safety*, identified safety manpower required at the county and city levels, including some occupations not found at the state level, and projected these requirements to 1978.

In searching the literature, the project staff was unable to identify many of the highway safety occupations in standard occupational references. The *Dictionary of Occupational Titles* and corresponding publications provided by the U.S. Department of Labor were reviewed and found to contain few specific highway safety occupational titles.

The project staff identified several substantive bibliographies pertaining to highway safety that have been published in recent years. Most significant among these are:

Highway Research Board. *A Selected Bibliography on Highway Safety, Annotated.* Bibliography 2, 1947, Supplement No. 1 (1949).

National Highway Safety Bureau, U.S. Department of Transportation. *Highway Safety Literature.* Compilation of Issues Numbered 1 through 52, issued December, 1967 through December, 1968 (July, 1969).

National Highway Safety Bureau, U.S. Department of Transportation. *Highway Safety Literature, An Announcement of Recent Acquisitions.* Weekly Publication, January, 1969 to present.

National Safety Council. *Guides to Traffic Safety Literature.* Vol. 10, 1955-1965.

U.S. National Bureau of Standards. *Bibliography on Motor Vehicle and Traffic Safety.*

Vocational and Technical Education Literature

Vocational Education Amendments of 1968: Vocational-technical education (education for occupations requiring less than a baccalaureate degree) has long been viewed as a key to the development of trained or skilled manpower. For many years, this nation has relied upon, and given legislative impetus to, educating people for the world of work. Among the most recent legislation are the Vocational Education Act of 1963 and the amendments to that act passed in 1968. In both instances, this legislation has focused attention upon the need for training more people in a wider variety of occupations, including new and emerging occupations.

The 1968 amendments provide federal grants to states for the purpose of updating and expanding vocational education at both the high school and post-high school level. These grants are made available to each state on the basis of a plan submitted to the Commissioner of Education in such detail as to characterize the state's vocational programs, services, and activities in advance of one and five years. This clearly means that as changes in the manpower supply occur and new and emerging occupations are created, occupational education needs must be rated high enough in priority to be included in the state plan submitted annually by the Office of the State Director of Vocational Education.

Four parts of the 1968 amendments are of significance to highway safety occupational education (*The Vocational Education Amendments of 1968, 1969*).

Part C—Research and Training

The Commissioner of Education is authorized to use 50 percent of the sums available under this part to make grants to and contract with institutions of higher education, public and private agencies and institutions, state boards,

and local education agencies to support research and training in vocational education, and to meet special vocational education needs of new careers and occupations. (p. 11)

Part D—Explemplary Programs and Projects
This section is intended to stimulate "new ways to create a bridge between school and earning a living for young people who are still in school, who have left school either by graduation or by dropping out, or who are in post-secondary programs of vocational preparation, and to promote cooperation between public education and manpower agencies." (p. 7)

Appropriations for Part D were $16,000,000 for FY 1971. Authorizations for Part D for FY 1972 are $75,000,000.

Part G—Cooperative Vocational Education Programs
Cooperative vocational education funds are allocated among the states and are to be used by the state board in establishing cooperative work-study programs through local educational agencies with participation of public and private employers.

Appropriations for Part G were $18,500,000 for FY 1971. Authorizations for Part G for FY 1972 are $75,000,000.

Part H—Curriculum Development
The Commissioner is directed by the act to promote the development and dissemination of curriculum materials for use in teaching occupational subjects; to develop standards for curriculum development in all occupational fields; to coordinate efforts of the states in preparation of curriculum materials available in all occupational fields; to survey curriculum materials produced by other federal agencies; to evaluate vocational-technical education curriculum materials and their uses; and to train personnel in curriculum development. (pp. 10-11)

Appropriations for Part H for FY 1971 were $4,000,000.

Congress appropriated $442,727,000 for vocational education for FY 1971, approximately $70 million more than fiscal year 1970. Concerning all funds authorized by the 1968 amendments, at least 15 percent must be earmarked for post-secondary programs within each state.

A National Advisory Council on Vocational Education is created through the Vocational Education Amendments of 1968. Its 21 members, appointed by the President of the United States, must include persons who are familiar with vocational education and manpower training programs, spokesmen for labor and management, experts in training handicapped and socioeconomically disadvantaged persons, and representatives of the general public, including parents and students.

The independent National Advisory Council, which meets quarterly, advises the Commissioner of Education and reports annually to Congress.

Each state receiving federal funds under the Vocational Education Amendments of 1968 must establish a counterpart advisory council. In addition to the types of representation required for the National Advisory Council, members of the state councils must also represent post-secondary institutions which provide occupational education, local educational agencies and school boards, and state industrial and economic development agencies. State councils are appointed by the governors or by state boards of vocational education that are elected rather than appointed.

State advisory councils must consult with the state board on the development of its annual and long-range plan for federally assisted vocational education. They advise the state board on the administration of the program and conduct independent evaluations at least annually.

The 1968 amendments provide many opportunities for developing and expanding of vocational-technical education programs to accommodate highway safety manpower needs. The problem is to make the need for highway safety personnel so evident that their occupations become high in the priority of training needs.

Highway Safety Act of 1966: Section 402 of the Highway Safety Act of 1966 was included in the literature reviewed. This section provides state appointments for the discretion of carrying out any, some, or all of the highway safety standards. Within this area of discretion is the further discretionary decision to use any, some, or all of the resources for training. The NHTSA follows the policy of allocating the resources within this section of the act to short duration in-service training only. The Highway Safety Act of 1966 provides that at least 40 percent of all federal funds apportioned for any fiscal year under section 402 will be extended by the political subdivision of the state carrying out authorized local highway safety programs.

On October 15, 1966, Public Law 89-670 established the Department of Transportation. The department has four main agencies: the Federal Railroad Administration (FRA), the Federal Aviation Administration (FAA), the Federal Highway Administration (FHWA), and the Highway Traffic Safety Administration (NHTSA).

Within the NHTSA, an Office of Safety Manpower Development was established to increase the supply and improve the skills of manpower required to implement effective highway and traffic safety programs at the federal, state, and local levels. Methods for achieving this goal are 1) training technicians and specialists in various program areas, 2) preparing and advancing management and professional personnel through short courses and a degree program, and 3) establishing pre-doctoral and post-doctoral fellowship programs for safety research workers and research administrators.

The Office of Safety Manpower Development plans, initiates, and manages programs to improve the quality and increase the quantity of all classes of highway safety manpower at all levels in the nation's governmental, institutional, and public stratas.

The publications *Abstracts of Instructional Materials*, and *Abstracts of Research Materials*, were reviewed to determine if they contained literature relevant to highway safety. Other indexes to educational materials were utilized to locate curriculum items and resources.

Two publications related to highway safety manpower development were previewed and found useful to the project. These were: *The Role of the Community College in Developing Traffic Specialists and Technicians* (Bishop and Sheehe, 1968), and *Highway Safety Manpower and Training: A Report on Highway Safety Manpower and Training Needed to Implement National Highway Safety Bureau Standards* (National Safety Council, 1968).

The publication *Vocational Education and Occupations* contains the codes by which vocational and technical enrollments are reported annually. Although lacking specific categories and codes for reporting enrollments in those programs for preparing personnel in highway safety occupations, this reference contains some general occupational categories that could include highway safety jobs or job functions, e.g., civil technician, automotive technical, police science technician.

16 Highway Safety Program Standards and the Purpose of Each

To meet the continuing problem of traffic accidents and the deaths, injuries, and property damage they cause, the federal government has joined the states in the establishment of a nationwide highway safety program.

This federal-state partnership distributes program responsibility through all levels and branches of government. However, the basic responsibilities for safe operation of highway traffic and for control of drivers remain with the states.

The federal role, expressed by the Congress, is one of leadership, guidance, and encouragement of improved state and local highway safety activities. This is done through the establishment (in cooperation with responsible officials throughout state and local government) of minimum national standards for state and local programs. These standards formed part of the framework of the project work.

Listed below are the number, title, and state purpose of each of the original *16 Highway Safety Program Standards* (U.S. Department of Transportation, 1967, 1968):

1. PERIODIC MOTOR VEHICLE INSPECTION

To increase, through periodic motor vehicle inspection, the likelihood that every vehicle on the public highway is properly equipped and is being maintained in reasonable safe working order.

2. MOTOR VEHICLE REGISTRATION

To provide a means of identifying the owner, type, weight, size and carrying capacities of every vehicle licensed to operate in the state, and to make such data available for traffic safety studies and research, accident investigation, enforcement, and other operational uses.

To provide a means for aggregating ownership and vehicle information for: a) accident research; b) planning and development of streets, highways, and related facilities; and c) other operational uses.

3. MOTORCYCLE SAFETY

To assure that motorcycles, motorcycle operators, and their passengers meet standards which contribute to safe operation and protection from injuries.

4. DRIVER EDUCATION

To insure that every eligible high school student has the opportunity to enroll in a course of instruction designed to train him to drive skillfully and as safely as possible under all traffic and roadway conditions.

To insure that commercial driver training schools achieve and maintain a corresponding level of instruction for beginning drivers with recognition of differences between the needs of adults and adolescents.

To provide education courses offering driving instruction to adults.

5. DRIVER LICENSING

To improve the quality of driving by implementing more effective and uniform licensing procedures, thereby reducing the number of accidents while increasing the efficiency of traffic flow.

6. CODES AND LAWS

To eliminate all major variations in traffic codes, laws, and ordinances with a unified overall state policy on traffic safety codes and laws, and to further the adoption of appropriate aspects of the Rules of the Road section of the Uniform Vehicle Code.

7. TRAFFIC COURTS

To provide prompt impartial adjudication of proceedings involving motor vehicle laws.

8. ALCOHOL IN RELATION TO HIGHWAY SAFETY

To broaden the scope and number of activities directed toward reducing the traffic accident losses arising in whole or part from persons driving under the influence of alcohol.

9. IDENTIFICATION AND SURVEILLANCE OF ACCIDENT LOCATIONS

To identify specific locations or sections of streets and highways which have high or potentially high accident experience as a basis for improvement, selective enforcement, or other operational practices that will eliminate or reduce the hazards at the locations so identified.

10. TRAFFIC RECORDS

To assure that data on traffic accidents, drivers, motor vehicles, and roadways are available to provide:

1. A reliable indication of the magnitude and nature of the highway traffic accident problem on a national, state, and local scale.
2. A reliable means for identifying short-term changes and long-term trends in the magnitude and nature of traffic accidents.
3. A valid basis for:
   a. The detection of high or potentially high accident locations and causes.
   b. The detection of health, behavioral, and related factors contributing to accident causation.
   c. The design of accident, fatality, and injury countermeasures.
   d. Developing means for evaluating the cost and effectiveness of these measures.
   e. The planning and implementation of selected enforcement and other operational programs.

11. EMERGENCY MEDICAL SERVICES

To provide emergency care systems that will:

1. Provide quick identification and response to accidents.
2. Sustain and prolong life through proper first aid measures both at the scene and in transit.
3. Provide the coordination, transportation, and communications necessary to bring the injured and definitive medical care together in the shortest practicable time, without simultaneously creating additional hazards.

12. HIGHWAY DESIGN, CONSTRUCTION, AND MAINTENANCE

To assure that: a) existing streets and highways are maintained in a condition that promotes safety, b) capital improvements either to modernize existing roads or to provide new facilities meet approved safety standards, and c) appropriate precautions are taken to protect passing motorists as well as highway workers from accident involvement at highway construction sites.

13. TRAFFIC CONTROL DEVICES

To assure the full and proper application of modern traffic engineering practice and uniform standards for traffic control devices in reducing the likelihood and severity of traffic accidents.

14. PEDESTRIAN SAFETY

To emphasize the need to recognize pedestrian safety as an integral and constant element in community planning and all aspects of highway transportation and to insure a continuing program to improve such safety by each state and its political subdivision.

15. POLICE TRAFFIC SERVICES

To reduce deaths and injuries and to bring those responsible for accidents to justice by improving post-accident procedures to aid crash victims and by strengthening police traffic services in all aspects of accident prevention programs and police traffic supervision.

16. DEBRIS HAZARD CONTROL AND CLEANUP

To provide for the assignment of official responsibilities and for the planning, training, coordination, and communications necessary to assure the recognition, reporting, and prompt correction of conditions or incidents that constitute potential dangers so that incident sites are restored to a safe condition and traffic movement expeditiously resumed.

Summary

In the past few years, the need for trained highway safety personnel has become apparent. These personnel are needed if traffic accidents, deaths, and injuries are to be reduced. To assist in this reduction, Congress passed The National Traffic and Motor Vehicle Safety Act and The Highway Safety Act of 1966.

Vocational-technical education has long been viewed as a key to the development of trained or skilled manpower. For many years, this nation has relied upon, and given legislation impetus to, educating people for the world of work. Among the most recent legislation are the Vocational Education Act of 1963 and the amendments to that act in 1968. Parts C, D, G, and H of the 1968 Amendments are of significance to highway safety occupational education.

A number of highway safety-related studies and surveys have been conducted in the last few years. The most noteworthy were presented in the preceeding section. The methodology utilized and the ensuing results of the studies reported were useful in developing the procedure and methodology for this project.

PROCEDURES AND METHODOLOGY

The project objectives were accomplished by performing certain major tasks. The major tasks performed or methodology chosen to accomplish the project objectives were to: 1) establish a model for relating highway safety occupational education programs to technical and skilled manpower requirements and these, in turn, to training programs; 2) survey and analyze existing vocational and technical training programs and associated training materials and resources; 3) interpret highway safety training status and prospects by a) selecting 60 outstanding vocational and technical educators to contribute to the project, b) developing in-service training materials to provide an orientation to National Highway Traffic Safety Administration manpower programs and other existing curricula and program developments, and c) conducting three-day regional workshops at three sites after the completion of the in-service training of the selected vocational and technical educators; 4) review and analyze the evidence of emerging and established occupational education programs in highway safety and probable future program voids, including recommendations growing out of the staff surveys and the workshop group. The procedures employed in performing these tasks are discussed in the following sections.

Task I. Establish a Model for Relating Highway Safety Programs to Technical and Skilled Manpower and These to Training Programs

The 16 Highway Safety Program Standards issued by the National Highway Traffic Safety Administration and the generalized occupational titles described in *Safety Specialist Manpower* (Booz, Allen and Hamilton, Inc., 1968) and found in state employment served as a basis for the model relating highway safety programs to technical and skilled manpower requirements (The 16 Highway Safety Program Standards were discussed in the review of literature section). A selected list of 17 generalized occupational titles were taken from *Safety Specialist Manpower.* Comparable occupations associated with county and municipal government and private firms, as defined by *Community Action Programs for Traffic Safety* (National Association of Counties Research Foundation, 1970), were utilized to complete the model.

Since the 16 Highway Safety Program Standards served as logical divisions within the highway safety field, occupational titles and/or job functions were categorized according to associate highway safety standards. The model served as a format for 1) surveying and analyzing training programs and associated materials and resources, 2) developing in-service training packages, and 3) planning workshop activities.

Task II. Survey and Analyze Existing Vocational and Technical Training Programs for Their Associated Training Materials and Resources

A review of summaries of vocational-technical education programs and enrollments (provided by the U.S. Office of Education) was made to identify existing and planned highway safety occupational education programs. Based on this review, an instrument was developed to identify existing and planned highway safety instructional activities. The instrument and accompanying letter of explanation are shown in Appendix A. This instrument sought information concerning highway safety occupational categories having entry-level requirements of less than a baccalaureate degree, the title or brief description of the program, and the name of the agency or institution offering the program. The instrument was mailed to state directors of vocational education, state directors of post-secondary education, and regional MDTA supervisors. A second instrument (Review of Highway Safety Programs and Courses, Appendix B) was developed to solicit information from the agencies and/or institutions identified by the initial instrument and by the American Association of Junior Colleges, the U.S. Office of Education, and the U.S. Department of Transportation. This instrument sought specific information concerning ongoing or planned programs and courses in highway safety occupational education. Instructional materials were identified and/or collected from these existing highway safety programs.

Additional appropriate materials were identified and secured by the project staff through organizations and services such as The National Safety Council, American Automotive Association, all state curriculum laboratories for vocational-technical education, Highway Users Federation for Safety and Mobility, American Vocational Association, and the American Association of Junior Colleges. A complete search of the research library at The Center for Vocational and Technical Education, The Ohio State University, was made for materials or related information. A thorough search of the national information retrieval storage and dissemination

system for vocational and technical education, Educational Resources Information Center (ERIC), was made. *Abstracts of Instructional Materials* and *Abstracts of Research Materials*, quarterly publications of The Vocational-Technical ERIC Center, were searched for highway safety curriculum materials and information.

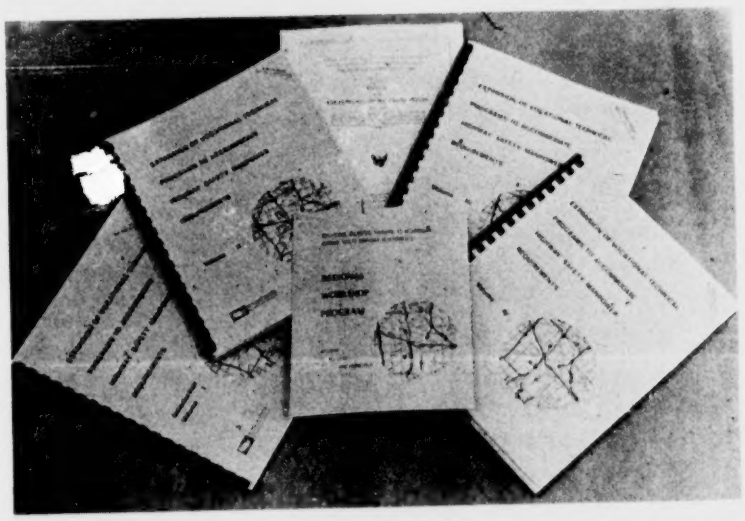
Plans were also made for a systematic evaluation of all identified highway safety curriculum materials to be included in the ERIC system and for abstracting these materials for The Vocational-Technical Education ERIC Center publications, such as *Abstracts of Instructional Materials* and *Abstracts of Research Materials*.

A complete and thorough study was made of occupational education enrollment data associated with highway safety throughout the United States, as provided by the U.S. Office of Education. This data included the number of educational institutions in the United States that offer public vocational and technical education, enrollments of these institutions, and the number of students enrolled in programs relating to highway safety. The data covered those programs receiving vocational education funds or funds from the Manpower Development and Training Act. Additional data were studied that included city, state, and national census figures, motor vehicle registration, motor vehicle accidents, deaths from motor vehicle accidents, and causes of highway accidents and deaths. The analysis of these data provided insights into which states have the greatest needs for manpower development programs in highway safety and the greatest potential for providing curriculum and resource materials in one or more of the highway safety areas.

Task III. Interpretation of Program Status

(A) Selection of 60 Participating-Consultants: Criteria for the selection of workshop participating-consultants were developed by the project staff and are shown in Appendix C. Many are known to have previous experience in vocational-technical programs which relate in some degree to highway safety skilled or technical occupations or subjects. With the assistance of the U.S. Department of Transportation, The American Association of Junior Colleges, The Division of Vocational and Technical Education, U.S. Office of Education, and the results of the two previously mentioned survey instruments, 165 outstanding vocational and technical educators were identified. This list of consultants was screened and 20 consultants were selected from each region (East, Central, and West) of the United States for participation in the project. Each of the 60 consultants (Appendix D) signed an agreement to participate in the project until its logical conclusion. The selection of the consultants was made with the understanding that they will likely support further long-range program developments that contribute to the continuation and expansion of training programs in occupations supporting the field of highway safety.

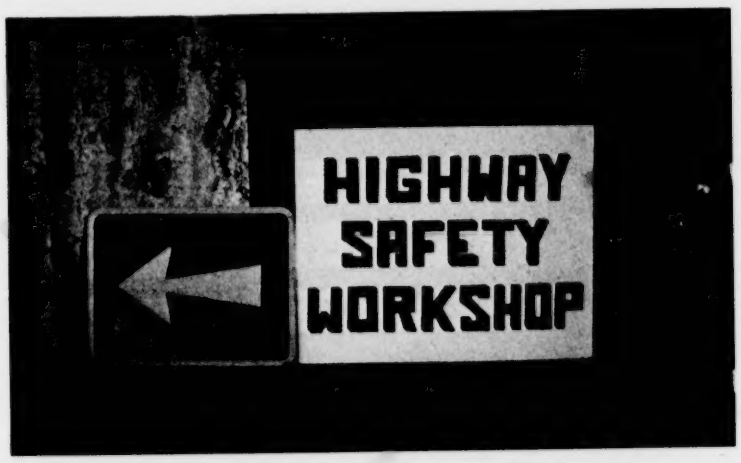
(B) In-service Materials Development: More than 300 items were collected as highway safety resource materials. From these resources, in-service training materials were developed by the project staff to provide the 60 participating-consultants with an orientation to National Highway Traffic Safety Administration manpower prorams and existing curricula and program developments. Each participating-consultant conducted research prior to the workshops in preparation for making a presentation in one highway safety category assigned by the project staff. The original in-service package was contained in four volumes and supplementary materials were inserted as necessary. These four volumes are submitted as attachments to the final report. The in-service training materials were arranged in an appropriate instructional sequence and distributed, over a period of time, to the 60 consultants for study prior to the regional workshops. At the conclusion of the workshops, a condensed version of these four volumes was printed in one volume, entitled *Highway Safety Occupational Program Development Guide.*



(C) Conduct Three-day Regional Workshops after the Completion of the In-service Training of Consultants: One workshop was held in each of the Eastern (Atlanta, Georgia; February 9-11, 1971), Central (Houston, Texas; February 23-25, 1971), and Western (San Francisco, California; March 9-11, 1971) areas of the United States with the 60 participating-consultants (20 at each workshop). For a number of reasons, 12 of the 60 par-

ticipating-consultants were unable to attend the workshop to which they were invited.

A complete program and schedule for these workshops is shown in Appendix E. The workshops were designed to build upon the foundation knowledge gained from the in-service training, to motivate the participants in the promotion and development of highway safety occupational education, and to secure from the participants their recommendations as to the role vocational and technical education should assume in meeting the manpower requirements of highway safety.



The participating-consultants worked on methods and means to:

1. Develop or update highway safety occupational programs.
2. Identify problems in programs implemented or revised.
3. Promote highway safety occupational programs.
4. Understand the objectives and long-range plans of the National Highway Traffic Safety Administration in manpower development.
5. Make recommendations for highway safety occupational education program materials.
6. Identify resource personnel for future program development.
7. Evaluate existing highway safety-related training programs, training materials, manpower needs, student resources, and availability of training funds.
8. Identify at least 10 highway safety-related occupations that have the greatest potential in terms of priority need and viability.
9. Identify overall priority training needs with recommendations to meet these needs by 1) modifying existing programs and training materials, or 2) developing new programs and curriculum materials.

Task IV. Review and Analyze Program Status

During the workshops, the participants were asked to make certain recommendations. These recommendations were analyzed in order to: a) recommend relative priorities for the establishment and development of additional training programs, and b) identify ways in which a portion of the funds from the National Highway Traffic Safety Administration and the Vocational Education Amendments of 1968 might most effectively be applied to meet training objectives of mutual interest to public education and highway safety.

These recommendations, along with other data and information identified by the project staff, are reflected in the findings, conclusions, and recommendations of this report.

Evaluation of Procedures and Methodology

In order to assess the effectiveness of the three regional workshops and to determine the effectiveness of the procedures and methodology utilized in the project, a three-part evaluation system was utilized. The three segments of the evaluation system were 1) in-service package evaluation (Appendix F), 2) workshop evaluation (Appendices G and H), and 3) participating-consultants' personal knowledge inventory (Appendix I).

1) After reading each volume of the in-service package, the participating-consultants rated the adequacy of each section within each volume.

2) A two-phase evaluation system was utilized in assessing the effectiveness of each of the three regional workshops.

3) During the project, the participating-consultants rated their personal knowledge of certain topics concerning highway safety occupational education.

Based on the data analysis and the responses of participants, the project was highly successful in achieving its expressed purpose and objectives.

Summary

In order to meet the primary objectives of this project, the following tasks were performed.

1. To establish a model for relating highway safety programs to technical and skilled manpower and these to training programs.
2. To survey and analyze existing vocational and technical training programs and their associated training materials and resources.
3. To interpret program status by a) identifying and selecting 60 outstanding vocational and technical educators to participate in

the project who will likely support further long-range program developments that contribute to the continuation and expansion of training programs in occupations supporting the field of highway safety, b) developing in-service training materials to provide the 60 consultants with an orientation to NHTSA manpower programs and other existing curricula and program developments, and c) conducting three, three-day regional workshops after the completion of the in-service training of consultants.

4. To review and analyze the project findings and a) recommend relative priorities for the establishment and development of additional training programs, and b) identify ways in which a portion of the funds from the National Highway Traffic Safety Administration and the Vocational Education Amendments of 1968 might most effectively be applied to meet training objectives of mutual interest to public education and highway safety.

A three-part evaluation system was utilized to assess the effectiveness of the workshops and to determine the effectiveness of the procedures and methodology used in the project. Based on the data analysis and the responses of the participating-consultants, the project was highly successful in achieving its expressed purpose and objectives.

FINDINGS

A number of state educational programs and other federally supported training activities have made some contribution to alleviating the growing manpower demands in highway safety. However, if existing and emerging manpower needs in highway safety are to be met, occupational training is needed on a massive scale. The following findings suggest that vocational and technical education may be able to play a primary role in developing manpower to meet present and emerging highway safety occupational needs. These findings are reported in the following order: 1) Safety Standards—State and Local Programs, 2) Job Titles and Manpower Data, 3) Training Programs, and 4) Commitment of Participating-Consultants.

Safety Standards—State and Local Programs

Program Standards for which Vocational-Technical Education has Pertinence: Through the analysis of previous manpower studies, the generalized job descriptions developed for these studies and the assessment of resources currently available in the public education system, it became obvious that significant technical or skilled manpower is required in the following safety areas:

1. Periodic Motor Vehicle Inspection
2. Motor Vehicle Registration
3. Motorcycle Safety
4. Driver Education
5. Driver Licensing
6. Alcohol in Relation to Highway Safety
7. Identification and Surveillance of Accident Locations
8. Traffic Records
9. Emergency Medical Services
10. Highway Design, Construction, and Maintenance
11. Traffic Control Devices
12. Pedestrian Safety
13. Police Traffic Services
14. Debris Hazard Control and Cleanup
15. School Bus Safety

It was concluded that the safety areas "Codes and Laws" and "Traffic Courts" did not require significant numbers of technical or skilled manpower to be considered in developing or expanding vocational and technical education programs. Out of this finding a recommendation was drawn that some of the knowledge and skills essential to implementing the safety area of "Codes and Laws" was essential in the performance of skilled or technical jobs in most of the other safety areas.

The safety areas "Motor Vehicle Registration" and "Traffic Records" require technical and skilled manpower with only minimum training in highway safety functions. It was suggested that a task analysis of jobs in these categories would be necessary to determine the need for special training in highway safety. It appears that most of the skilled or technical manpower requirements in these two safety areas can be met through one of several business or data processing curricula. The special knowledge of highway safety could possibly be learned on the job, or through short courses, seminars or workshops offered periodically by vocational-technical education departments in public school systems.

Levels and Agencies of Employment: Within the technical and skilled manpower for each of the safety areas there appears to exist a wide variety of career ladders or levels of employment. Though these levels or career ladders vary widely from agency to agency, some generalizations seem apparent: 1) the number of different levels of employment (number of career ladder steps) increases with the size of the labor force employed within a given occupational category; 2) the greater the number of levels of employment within a occupational category, the more specialized the job performance requirements become; 3) placement within the career ladder may not always be consistent with the written requirements of that job; 4) where organized collective bargaining is being practiced, vertical or upward mobility on the career ladder is closely associated with tenure and experience, and educational attainment has little influence; and 5) few of the career ladders require or acknowledge education for those jobs or levels requiring less than a baccalaureate degree from college.

The jobs or job functions associated with highway safety are generally found within the governmental agencies. In general the state government exclusively conducts those functions in 1) periodic motor vehicle inspection, 2) motor vehicle registration, 3) motorcycle safety, and 4) driver licensing. In some instances, the periodic motor vehicle inspection is contracted to private garages, but they act as an extension of the state government.

Within the remaining safety areas, the jobs or job functions may be performed by state or local governmental agency employees. The perform-

ance standards, job entry-level requirements and career ladders tend to vary considerably among these various agencies.

Some of the safety areas provide opportunities for the private sector to employ people for highway safety jobs or job functions. The safety area of driver education may involve commercial driving schools that employ instructors with an associate degree. Some local municipalities still rely on commercial establishments to provide emergency medical services. Most of the wrecker services that relate to the debris, hazard control and cleanup safety area are owned and operated by private concerns. Within the school bus safety area, part of the driver education safety standard, there seems to be a trend toward school districts contracting for bus services through private bus companies.

Knowledge Concerning Selected Highway Safety Occupational Education Topics: The participating-consultants involved in the project were assessed for their personal knowledge concerning selected highway safety occupational education topics. The assessments were made before the participating-consultants' actual involvement in the project, after they studied the in-service-materials, and at the conclusion of their involvement in the project [Table 1].

TABLE 1

Participants' Mean ($\bar{X}$) Ratings of Personal Knowledge of Selected Highway Safety Occupational Education Topics (mean based on 5 point scale; 1 = very little knowledge, 5 = very knowledgeable)

Item	Before Project $\bar{X}$	After In-service Study $\bar{X}$	Conclusion of Project $\bar{X}$
National Highway Safety Act of 1966	2.40	2.89	3.53
National Traffic and Motor Vehicle Safety Act of 1966	2.16	2.86	3.43
Purposes of the 16 Highway Safety Standards	2.64	3.16	4.30

Due to the limited selected population upon which it is based, caution should be exercised in drawing generalizations from this data. The participating-consultants were selected, in part, on the basis of their present involvement with programs relating to training for highway safety occupations. Therefore, it would seem reasonable to assume that their knowledge, prior to the project, would be greater than that of a random sample of vocational-technical educators. It would appear that the in-service materials developed for the project can be used to provide significant gain in knowledge of vocational and technical educators with regard to these three topics. However, it appears that a more concentrated and a more personalized (e.g., conference or workshop) experience is necessary to more adequately inform vocational and technical educators in these highway safety topics.

In summary, the participating-consultants increased their knowledge in all three subjects at the end of the in-service materials reading and at the conclusion of the project, although less than a complete understanding (a mean of five) was achieved on each of the three.

Job Titles and Manpower Data

The Model: The model utilized in studying the technical and skilled occupations included those job titles used in the surveys conducted by The National Association of Counties and by Booz, Allen and Hamilton, Inc. The job titles were then grouped by safety areas which were similar to the 16 safety standards, except for school bus safety which was separated from the driver education safety standard.

Occupational Classifications for Highway Safety Occupations: An extensive search for occupational titles and occupational classifications for highway safety resulted in the following findings:

1. In many instances, the manpower needs for highway safety are for skills and knowledge to perform highway safety functions in many of the existing occupations. Many of the functions of highway safety encompass skills and knowledge that must be utilized by an individual as a portion of his work duty. These functions may not occupy the full work day of an individual on the job. In fact, in many cases, the highway safety function requires less than half of the total work day in the occupations that deal with this field.
2. Due to the fact that many of the highway safety manpower requirements are job functions rather than complete occupations in themselves, and because of the new and emerging occupations in highway safety, present or existing occupational categories do not provide for or include highway safety occupations clearly. Almost without exception, there is a lack of highway safety

taxonomy within the occupational classifications or within educational enrollment classifications. The job of developing the taxonomy for highway safety occupational training will be difficult due to the variations within manpower requirements for the areas. However, such a taxonomy is essential to facilitate the communications between highway safety authorities and those in the educational agencies responsible for training in manpower development. It seems that the taxonomy would also be very helpful in determining the role of the various agencies in manpower development in highway safety.

3. The *Dictionary of Occupational Titles* does not contain most of the highway safety occupations identified through Booz, Allen and Hamilton, Inc., or similar manpower studies. It is evident that the generalized occupational classifications that were generalized by the highway safety manpower studies may not meet the requirements to be classed as an existing occupation in the *Dictionary of Occupational Titles*. This again raises the question as to whether the highway safety occupational functions are truly jobs or merely functions within a job.

Schemes for classifying occupational and education needs in highway safety have been developed.

A filmstrip and taped audio presentation on occupations within highway safety has been developed by the Highway Users Federation for Safety and Mobility, Washington, D.C. Under contract with the National Highway Traffic Safety Administration a counselor's handbook or manual has also been developed in conjunction with the visual and audio programs.

The American Association of Junior Colleges, Washington, D.C., published *The Role of the Community College in Developing Traffic Specialists and Technicians* (Bishop and Sheehe, 1968). This publication identified occupations in highway safety and gives a breakdown of major functional areas for traffic specialists and technicians. A very important role for the community college in developing highway safety manpower is outlined in the publication.

Manpower Data: Recent national surveys have identified a number of highway safety occupations or job functions in which there exists a manpower shortage or where a shortage will likely occur in the near future. Still, it remains evident that sufficient and accurate manpower data does not exist to determine the need for future highway safety occupational preparation programs. This is especially true at the local and state levels (Table 2).

TABLE 2

Participating-Consultants' Reactions as to Whether Adequate Data Exists to Determine the Need for Highway Safety Manpower Occupational Preparation Programs (N = 48)

Level	Responses		
	Yes	No	Undecided
Federal	20 (41.7%)	15 (31.3%)	13 (27.0%)
State	15 (31.3%)	28 (58.3%)	5 (10.4%)
Local	10 (20.8%)	31 (64.6%)	7 (14.6%)

According to 64.6 percent of the participating-consultants, insufficient manpower data exists at the local level, while 58.3 percent felt that insufficient manpower data exists at the state level. These manpower data will be essential to determining the need for highway safety occupational preparation programs.

In delineating the term "manpower data," the vocational educator sees this data as including present employment figures, actual and projected job openings, job classifications, and job entry-level requirements.

Several considerations should be given in interpreting this expressed need for additional manpower data. It is obvious from the discussions with the participating-consultants that their expressed needs for more manpower data was a request for data upon which hard decisions could be based in the allocation of funds for developing and/or expanding educational programs. The manpower data now available does not indicate net job openings for state or local areas. The vocational and technical education programs are evaluated on the basis of the percentage of students or graduates placed in jobs for which they were trained. Understandably, the teacher or administrator must have reliable hard data on the job openings before pushing the development of a new program or the expansion of an existing program.

A second point to consider is that of responsibility for assimilating these manpower data. The most desirable approach would join efforts of the local administrator of the vocational and technical education programs and the local highway safety authorities in assimilating manpower data. Though this is the desirable approach, there are at least two reasons why this is not likely to occur.

First, the education administrator is not likely to be well enough informed as to what constitutes occupations in highway safety to be motivated to conduct a survey. The time needed to conduct manpower surveys in highway safety may be demanded and utilized by other groups with more influence, prestige, or identifiable occupations. Second, a central identifiable authority for highway safety does not exist in most local areas for approaching the education establishment to join in an occupational needs study.

Knowledge of Highway Safety Occupations with Manpower Shortages: The participating-consultants' knowledge of at least five highway safety occupations requiring less than a baccalaureate degree in which there is estimated to be a manpower shortage within the next five years was also assessed. Using the scale of 1 through 5 (1 being not knowledgeable in the subject and 5 being very knowlegeable in the subject) the mean rating for the participating-consultants was 2.27 before becoming involved in the project, 2.89 after completing the in-service package, and 4.00 upon concluding their involvement with the project. This indicates that the participating-consultants did not know of manpower needs in highway safety prior to becoming involved with the project, but were fairly knowledgeable in the subject by the time they completed their experences with the project.

Highway Safety Related Occupations: Through the conduct of the project, the following highway safety-related occupations/functions were identified as having the greatest potential in terms of priority need and viability within vocational-technical education. These priorities identified by the participating-consultants in this project were established with the limited local manpower data and highway safety priorities available to them at that time. These occupations represent the potential for vocational and technical education programs on a national scale. Local priority needs must be established in the development of local or regional educational programs. The occupations/functions are:

Emergency Medical Techician—Ambulance
Motor Vehicle Inspector
Breath Examiner Specialist
Highway Safety Engineering Technician
Traffic Engineering Technician
School Bus Driver
Accident Site Investigator
Traffic Patrolman
Driver Education Teacher and Teacher's Aide
Pedestrian Safety Program Specialist
Driver Licensing Examiner

Several other occupations were listed as having potential. These additional highway safety-related occupations are shown in Appendix J.

The project participants recommended that the tasks required to perform these occupations be examined to determine the commonalities that exist. These common tasks might serve as a basis for developing some common curriculum that could be utilized in all or a number of the occupational preparation programs in highway safety.

Training Programs

In examining the programmatic efforts by vocational and technical educators in these occupational areas, it was evident that a frequent approach to manpower development is through retraining, upgrading, and short-course instruction. It can be concluded that this approach to providing the manpower in highway safety occupations is a duplication of the efforts that are most predominate within other agencies and their respective training programs for these occupations.

Section 402 of the 1966 Highway Safety Act provides funds for agencies to train manpower through short-term educational programs. Although it may be important for the vocational and technical education sector to continue providing short-term educational programs for manpower development in highway safety, it is also apparent that these same institutions will have to concentrate on pre-employment training which will likely result in longer term programs.

Many vocational and technical education programs begin through short-courses and retraining and upgrading efforts. This allows educational institutions to begin manpower training in an area to determine the adaptability of the educational institution to the occupational requirements and to get experience with this type of training prior to initiating more long-term and comprehensive training programs which require, in most cases, a considerable amount of investment.

It is likely that the differentiation between short-term educational programs and long-term training efforts will be determined by the task analysis performed in the occupations and functions of highway safety. Again, it is very evident that a number of the generalized occupational categories identified in previous highway safety manpower may be of job functions rather than of a total occupation. Training for some of these functions may be handled through a short duration training program or minor adjustments with-

in the curriculum offerings of one or more of the related occupational training programs.

Agencies Responsible for Developing Manpower: The project staff attempted to identify, through various national associations, those agencies presently assuming the responsibility for developing manpower for highway safety requirements. Although the survey was quite limited due to the confines of the study, it was found that no central agencies or set of statistics are available to show the extent of manpower development in highway safety at the present time. It was obvious from this survey that a great deal of the police traffic training occurs within existing police academies. In a number of the other highway safety occupations or job functions, short in-service course or on-the-job training is occurring within most any agency of any size dealing with highway safety.

Again it should be stressed that it may be appropriate for agencies in addition to the vocational and technical education institutions to provide highway safety manpower training programs for the short-term training efforts. For these efforts it may be very appropriate to expend funds from Section 402 of the 1966 Highway Safety Act. It may be appropriate that these same funds be expanded for the purpose of identifying manpower needs, present training efforts, and the acquisition of facilities, equipment, or specialized expertise which might be used in cooperation with educational institutions to provide the necessary training programs. Due to the limitations of the Section 402 funds, it is essential that these funds be utilized to provide manpower training or segments of training programs that could otherwise not be funded through the normal channels of vocational and technical education. In this way, the federal appropriations for highway safety manpower development and for vocational and technical education training can be utilized in a complementary manner rather than as duplication funding or for the purposes of competitive efforts between various governmental agencies and institutions.

Three types of educational institutions were identified by the participating-consultants as appropriate for developing and maintaining highway safety occupational training programs. These institutions were: 1) area (joint) vocational schools; 2) community-junior colleges, technical institutes; and 3) four-year colleges or universities. As recommended by the participating-consultants, vocational-technical educators at the following institutional levels can be prime contributors to the development and implementation of programs in the identified highway safety occupational areas.

Emergency Medical Technician—Ambulance: Community College, Technical Institute
Motor Vehicle Inspector: Community College, Technical Institute, Area Vocational School (Certificate Program)
Breath Examiner Specialist: Community College, Technical Institute
Highway Safety Engineering Technician: Community College, Technical Institute
Traffic Engineering Technician: Community College, Technical Institute
School Bus Driver: Area Vocational School, Community College, Technical Institute (Certificate Program)
Accident Site Investigator: Community College, Technical Institute
Driver Education Teacher: Four-year University
Driver Education Teacher's Aide: Community College, Technical Institute or Commercial Driver Education Instructor's School
Traffic Patrolman: Community College, Technical Institute
Pedestrian Safety Program Specialist: Community College, Technical Institute
Driver Licensing Examiner: Community College, Technical Institute (Certificate Program)

Identification of highway safety occupations and program enrollments is not clearly visible in the United States Office of Education's occupational classification codes utilized for reporting vocational and technical education enrollment (*Vocational Education and Occupations, 1969*). The United States Office of Education reports for the fiscal year 1969 (enrollment figures are generally two or more years old due to the reporting system of the school and the states for fiscal matters) show the following enrollments for all the states:

Technical Occupations—FY 1969	
Total Enrollment	315,192
Secondary Level	31,900
Post-Secondary Level	176,055
Adult Supplementary	102,010
Apprentice	3,360

The following occupational classifications may include highway safety instruction:

Engineering Related Technology	8,600
Civil Technology	13,885
Automotive Technology	4,001
Electrical Technology	14,053
Electronics Technology	74,941
Electro-Mechanical Technology	2,451
Instrumentation Technology	3,747
Scientific Data Technology	35,914
Related Data Processing	16,448
Fire and Safety Technology	2,239
Police Science Technology	8,109
Related Police Science Technology	11,895
Related Technologies	40,422

Trade and Industrial Occupations—FY 1969

Total Enrollment	1,723,029
Secondary Level	457,942
Post-Secondary Level	281,829
Adult Supplementary	802,209
Apprentice	121,385

The following occupational classifications may include highway safety instruction:

Automotive Industries	19,921
Body and Fender	22,071
Automotive Mechanics	126,372
Related Automotive Industries	15,247
Heavy Equipment (Construction)	3,164
Related Construction Industries	17,077
Related Mechanics	7,018
Drafting Occupations	69,853
Electrical Occupations	19,568
Related Electrical Occupations	47,061
Related Electronic Occupations	6,236
Public Services	90,529
Related Public Services	34,904
Fireman Training	131,580
Law Enforcement Training	60,167
Related Technologies	70,836

The 1971 *Directory—American Association of Junior Colleges* reports that there are 1,091 community-junior colleges and technical institutes in the United States. Of these, 847 are public institutions, while 244 are independent. The *Technical Education Yearbook, 1969-70* reports 1,190* post-secondary institutions (less than a baccalaureate level) offering occupational training.

With present information it is not possible to relate the extent to which the instruction for highway safety competencies is included within the programs being reported under the above classifications. The initial project survey indicated that highway safety instruction is most likely to be provided only in automotive mechanics, civil engineering technology, and police science (law enforcement) in post-secondary and supplementary programs.

A search of the Manpower Development and Training projects approved for July 1, 1967, through June 30, 1968, (the latest information available) indicated that 2,105 MDT projects were operated and served 625,281 trainees. Though the Manpower Development and Training project reports are broken down by projects by states, a preview of these individual projects indicated that about 20 percent, or approximately 402 projects, dealt with occupations that could be related to highway safety functions. Approximately 25 percent of the total trainees, or 156,000 trainees, were enrolled in these projects. Again this data only indicates the approximate number of people being trained in areas that may be related to highway safety.

With the limited data available, it is evident that post-secondary programs in vocational and technical education now enroll a large number of students in numerous programs somewhat related to the occupations in highway safety. The surveys conducted by the project staff indicate that these related occupational training programs, for the most part, do not offer sufficient in-depth training in highway safety skills and knowledge. A study of these programs also indicated that a gradual transition into training related to highway safety occupations or occupational functions may take place by incremental installation of curriculum models into existing programs. A sufficient task analysis of highway safety functions and occupations will enable the curriculum developers in vocational and technical education to determine the extent to which additional curricula will have to be developed and implemented into existing programs.

Educational and Institutional Commitment: A number of national and state educational agencies and local institutions made significant contributions to the project. These agencies and institutions provided more than 300 pieces of resource materials which were utilized to inventory existing information in the area of highway safety occupational training. The state vocational education directors and directors of the state systems of community-junior colleges committed time and effort in supplying information concerning existing programs in the area of highway safety occupational training. Missouri, Oregon, and Virginia conducted intra-state interagency surveys to determine what highway safety occupational training existed within those states. A less comprehensive survey of interagency participation in occupational training for highway safety occupations was conducted within 15 states.

A total of 190 local educational institutions provided information concerning programs that relate to highway safety occupations. This information ranged from a brief description of the programs and requirements to complete the programs to very extensive curriculum materials and descriptions of the programs.

Availability of Curriculum Materials: From these materials, 181 items are firmly related to curriculum and/or instructional in highway safety occupational education. The number of materials are shown below by highway safety occupation/function or by highway safety category. The title

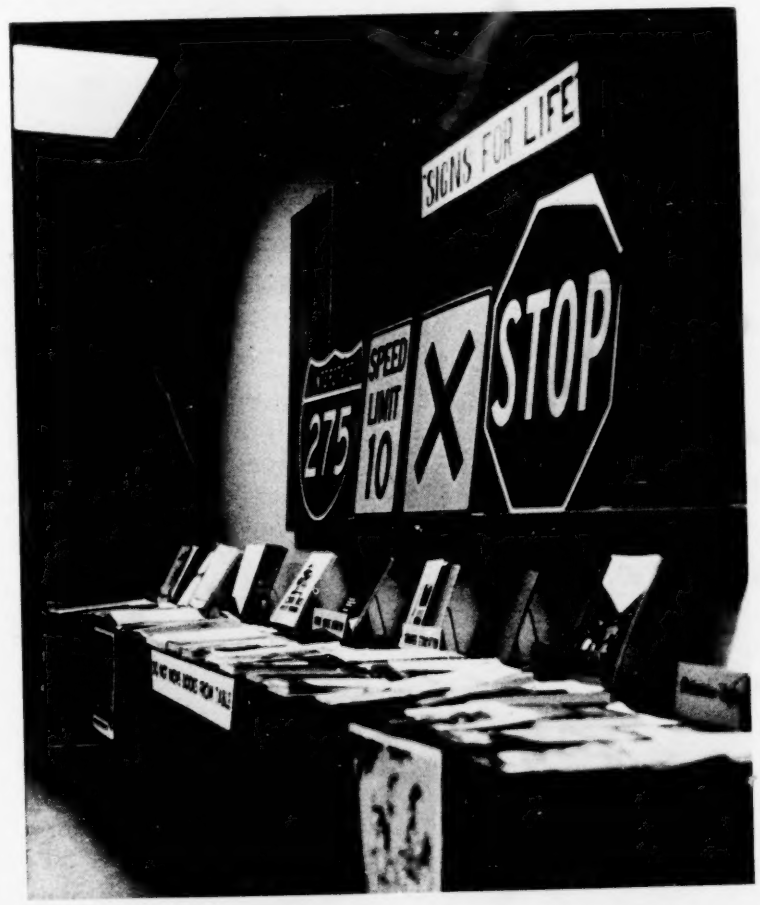
*Most institutions included in the *AAJC* publication were also listed in the *Technical Education Yearbook*.

and source of these materials are given in Appendix K.

Highway Safety Areas	Number of Curriculum Publications Identified
Traffic Patrolman	28
Highway Safety Engineering Technician	25
Driver Education Teacher and Driver Education Teacher's Aide	24
Emergency Medical Technician—Ambulance	23
Motor Vehicle Inspector	17
School Bus Driver Driver Education Teacher and Driver Education Teacher's Aide	16
Motorcycle Safety Pedestrian Safety Program Specialists	13
Breath Examiner Specialist Driver License Examiner	10
General Highway Safety Motorcycle Safety	9
Pedestrian Safety Program Specialist Traffic Courts	7
Accident Site Investigation General Highway Safety	6
Driver License Examiner	2
Traffic Courts	1

A sufficient supply of base curriculum materials is available in the areas of emergency medical technology—ambulance, motor vehicle inspection, school bus driving, and driver education. This is in contrast to the highway safety occupational education thrust in public educational institutions. Public school involvement in training highway safety specialists and technicians has been limited primarily to two-year associate degree programs in civil and highway technology, police science-law enforcement, and isolated programs in emergency medical technology.

A limited number of base curriculum materials are available in the areas of highway safety engineering technology, traffic engineering technology, and accident site investigation. However, the subjects included in these materials often do not clearly distinguish them as highway safety-related materials. This stems, in part, from a variety of local and state operational/manpower bases within the states. Many of the materials are limited in content because they are designed to prepare personnel for a particular function. For example, materials related to accident investigation are generally prepared to provide law enforcement personnel with knowledge and skills needed to investigate accidents from the standpoint of law enforcement. In-depth coverage of highway design and construction and maintenance factors involved in highway accidents is not included. This often precludes the wide use of these materials in public educational institutions and other nonpublic educational agencies and firms.



There is almost a complete lack of base materials to train breath examining specialists, traffic patrolmen, driver license examiners, and debris hazard control and cleanup personnel (wrecker operators, etc.). It should be noted that the apparent large number of materials related to traffic patrolmen actually only contain short units or subjects related to traffic along with a broader coverage of non-traffic related functions in law enforcement.

An observation was made by several project participants and project staff that there seemed to be similar instructional units in the curriculum materials for several different occupations. This observation resulted in a question as to whether sufficient common instructional elements would be required for several or all of the highway safety occupations as to warrant the development of a core, or common, curriculum.

It is assumed that published and non-published training information and curriculum materials are available from many state and local agencies other than public educational institutions which have conducted training in many

areas of highway safety. However, most of these materials are fragmentary and lack substantive elements needed in developing and expanding occupational education programs in public educational instituions. In order for the materials to be useful to vocational and technical program planners and instructors, sources must be identified and materials collected, organized, and prepared in meaningful sequence.

The following sections deal with the characteristics and sources of some of the noteworthy curriculum materials.

Emergency Medical Technician—Ambulance: The U.S. Department of Transportation contracted with Dunlap and Associates, Inc., (1968) to develop the following materials related to a basic training program for the emergency medical technician—ambulance: 1) *Concepts and Recommendations*, 2) *Course Guide and Coordinator Orientation Program*, and 3) *Instructor's Lesson Plans*. It is recommended that training agencies and institutions carefully review these materials and consider the alternatives and possible adoption of the material for instructing emergency medical technicians—ambulance, particularly in the medical aspects of their job.

A textbook and an instructor's guide in emergency care and rescue are available from the Ohio Division of Trade and Industrial Education. These materials provide for 60 hours of instruction, augmented and supplemented by 16 hours of hospital exposure to emergency medical care. The materials are comprehensive enough to prepare individuals for taking the national examination for registering as an emergency medical technician—ambulance.

Police Traffic Services: Some research has been conducted by various agencies in an effort to determine the subject matter content necessary for adequately training police traffic services personnel. Fennessy (1968) reported that training standards for police traffic services were inadequate in both law enforcement agencies and post-secondary educational institutions. Training programs investigated varied greatly in duration, and programs offered by law enforcement agencies differed greatly from those provided by post-secondary educational institutions. Programs in post-secondary educational instituions generally provide a broad base of knowledge and skills in law enforcement, including several general education courses. It is usually anticipated that program graduates can find employment in a number of governmental and private agencies. On the other hand, the training programs offered by law enforcement agencies are designed for personnel already employed. The trainee is introduced to the knowledge and skills essential to task performance immediately upon employment. The formal training in law enforcement is relatively short in duration, with most of the learning taking place through actual experience on the job.

Fennessy concluded that the needs of the agency responsible for traffic control functions must be carefully defined before well prescribed curriculum can be designed. According to Fennessy, complete job analysis of police traffic functions must be conducted to provide a sequenced, step-by-step descriptive profile of all tasks performed by police traffic services officers. The time consumption for tasks performed should be a prime concern of the analysis. Alternative traffic law enforcement techniques should be studied.

It is desirable that each individual complete the appropriate requirements before actually entering police services. This would be followed immediately by training at a police training academy which would provide for a more complete and proper perspective into departmental rules, regulations, and rudimentary skills required for successful police work. Students completing post-secondary programs which provide instruction in these areas would not be required to take the police academy program since it is intended for all recruits who have not otherwise had such background education and experiences. These models make provisions for many more instructional activities in traffic control than customary.

Green and Schaeffer (1967) found that police services personnel in small urban areas have relatively little opportunity for extensive training. This is incompatible with the knowledge and skills needed by the small town policeman or patrolman who is required to perform many varied activities in law enforcement.

Green and Schaeffer also found that local determination for training programs produces a wide range of differences across the nation in curriculum practices. This in turn, makes it difficult for those contemplating new training programs to determine what should be included in police training curricula and how training contents should be selected.

Crockett and Stinchcomb (1968) prepared a manual entitled *Guidelines for Law Enforcement Education Programs in Community and Junior Colleges*. This manual is directed toward assisting the administrator, supervisor, and instructor in meeting the total needs of modern law enforcement agencies at national, state, and local levels. Among the other useful information, the manual

suggests several possible curriculum patterns for consideration by community and junior colleges. The manual covers the entire field of law enforcement and presents curriculum patterns which can be used in selecting alternate subject elements to be included in training programs for police traffic patrolmen. The materials include a suggested two-year associate degree curriculum, courses to be provided in short courses, seminars, and institutes designed to meet current needs of various law enforcement agencies.

The Ohio Trade and Industrial Education Service, Division of Vocational Education, (Ohio State Department of Education) developed curriculum materials for law enforcement officers' training to meet the needs expressed by the Buckeye State Sheriffs Association and the Ohio Association of Chiefs of Police for an effective training program. The materials were evaluated and authenticated for subject content by an advisory committee composed of representatives of the Buckeye State Sheriffs Association and the Ohio Association of Chiefs of Police. The curriculum materials are contained in two volumes—an instructor's manual and a learner's manual (text).

Accident Site Investigation: A limited number of curriculum materials in accident site investigation are available from state highway patrol academies, local police departments, and community-junior colleges (through law enforcement-police science programs). Many state and local agencies (other than public schools) have conducted training in accident site investigation. Published and non-published information about these efforts are on hand in most of these agencies. However, most of these materials are fragmentary and lack substantive elements needed in developing and expanding occupational education programs in public education institutions. These materials could be collected, organized, and prepared in meaningful sequence, as necessary, by program planners and instructors.

A course guide for training accident site investigators will be available from the National Highway Traffic Safety Administration in late July, 1971. This guide, prepared under contract by Battelle Memorial Institute, Columbus, Ohio, is intended to deal with who investigates, what is involved in the investigation, the levels at which accident investigations are conducted, accident data, and who uses the accident data. This material is prepared for local and state police departments, state highway personnel, city traffic engineering departments, junior colleges, and universities. The guide includes an outline of subject elements for training accident site investigators, as well as alternative ways of preparing personnel for the investigation position.

The California Highway Patrol Academy (1970) prepared a manual designed to supplement the classroom instruction for accident site investigators and to serve as a reference for investigators in the field. An instructor's guide in traffic accident investigation is available from the North Carolina Department of Community Colleges (1969). This material, which was developed by the Wilmington North Carolina Police Department, provides for 30 hours of instruction. Community-junior colleges and technical institutes in North Carolina have used this guide to provide specialized training for employed law enforcement personnel as part of a two-year associate degree curriculum. Booz, Allen and Hamilton, Inc., (1968) and the Stanford Research Institute (1969) have made initial efforts to determine the scope of accident site investigation and accident site investigation aide and special training necessary for entry and advancement in the field.

Driver Education: State departments of education publish and distribute driver education curriculum guides used in conjunction with teaching secondary school driver education courses. Driver education materials are also available from drivers' clubs, insurance companies, state bureaus of highway safety, etc.

Because of its strong interest in the subject, the American Automobile Association has produced teaching materials. The Automotive Safety Foundation, too has long engaged in upgrading driver education and has recently developed new curriculum materials for teaching driver education courses. Textbooks, audiovisual materials, and other resources are available from commercial publishing houses.

The Human Resources Organization (1970) has examined the types of situations that typically confront the automobile driver, identified the appropriate driver behavioral responses, and determined what the driver should do in response to each situation. This analysis resulted in a set of 1,700 specific driving behaviors grouped in a hierarchy of tasks and sub-tasks. For each task the driving analysis includes a description of the appropriate driving behavior, indices of criticality, and related information about driver behavior. When completed, a set of instructional objectives based upon the task analysis will be available as a model for individual school systems.

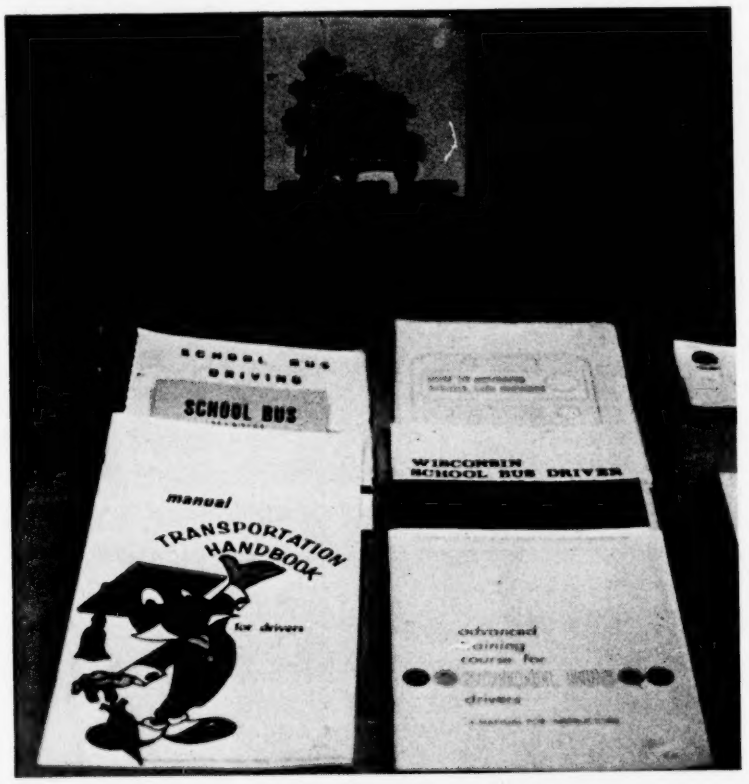
Information on the following subjects can be obtained from various state agencies and educa-

tional institutions within the states: financing driver education programs, state driver education standards, organizing instructional activities, instructor qualifications, forms and record keeping for driver education, evaluating driver education programs of instruction, driver education facilities and equipment, placement of driver education in the school curriculum (including time allotment and scheduling of students), and public relations for driver education programs.

A driver improvement guide was published by the Wisconsin Bureau of Highway Safety Promotion (1970), Wisconsin Bureau of Motor Vehicles. Published as an official manual for traffic safety schools which provide refresher training for traffic court referrals, the material contains inputs made by judges, prosecutors, educators, and legislators. The primary purpose of the Wisconsin Traffic Safety School is to provide a means for chronic traffic violators to better understand traffic responsibilities for the safety of themselves and others. The schools must be operated in full cooperation of the traffic courts, and the traffic judge plays an important role in determining who can benefit from the school. Attendance may be compulsory. Wisconsin's schools of vocational, technical, and adult education are recognized as the logical and best equipped local agencies for establishing traffic safety schools.

A 100-hour course guide for training commerical driver school instructors has been developed by the Wisconsin Board of Vocational, Technical, and Adult Education (1970). This course guide stemmed from Wisconsin legislative action making it mandatory that commercial driver school instructors satisfactorily complete a 100-hour course in driver and traffic safety education in order to qualify for an instructor's license to teach students under 18 years of age.

School Bus Safety: Numerous state departments of education have prepared various types of materials relative to school bus driving. Design and form of the materials are based upon the instructional settings in which the materials will be used and the types of instructional activities to be provided, e.g., short-courses or clinics at universities, community-junior colleges, area vocational education schools, or mobile units, (specially equipped school buses). Available materials relative to school bus driving exist in three forms: 1) handbooks designed primarily for self-instruction rather than for use in systematic training courses; 2) reference materials related to school bus standards, rules, and regulations to be used by school bus administrators, drivers, and maintenance foremen; and 3) instructor's manuals for use in organizing and managing training programs.



Of particular note in this regard is the State Education Department of New York where notable progress has been made in the promotion of school bus safety through development of an instructor's manual for school bus driver training. A section of this manual includes suggestions for organizing a course for school bus drivers.

Joint efforts of the Wisconsin Department of Public Instruction and the Wisconsin Board of Vocational, Technical, and Adult Education have resulted in a transportation handbook for drivers and an in-depth course outline for experienced school bus drivers. The latter material is designed to increase school bus transportation knowledge and skills beyond the minimum techniques and knowledge required of a holder of a school bus operator's license.

Three school bus driver training manuals were developed by the Ohio Trade and Industrial Education section of the Division of Vocational Education, and the Ohio Division of School Finance (Ohio State Department of Education). A pre-employment manual (1970) enables prospective school bus drivers to become acquainted with the school bus driving occupation, including entrance requirements. The pre-employment manual is used to prepare individuals to take a driving and written test for a school bus operator's license. A basic driver's manual (1970) provides in-depth coverage of the knowledge and skills required of a school bus driver. A third manual (1969), an ad-

vanced driver course provides a review and further treatment of the many duties and responsibilities of a school bus driver. Instructor's manuals have also been prepared for use in conjunction with each of the three manuals.

Highway Design, Construction, and Maintenance: Quality standards proposed by such groups as the American Association of Junior Colleges and the American Society for Engineering Education are available for use in planning, developing and implementing engineering technology curricula. Much information needed to plan and develop highway safety engineering technology programs is available from these sources. Most of the existing curriculum materials are designed for two-year associate degree programs in community-junior colleges and technical institutes.

There have been several studies to determine what major subjects should be incorporated into civil technology curricula and the time that should be allotted to each subject. One such study was conducted by Dobrovolny (1968) and reflects standards established by previous studies by the American Society for Engineering Education and the U.S. Office of Education.

In 1966, the U.S. Office of Education prepared a curriculum guide entitled *Civil Technology: Highway and Structural Options*, designed to help administrators, supervisors, and teachers plan, develop, and evaluate programs. The guide is composed of course outlines, suggested program operation procedures, laboratory layouts, texts and references, lists of laboratory equipment and its cost, and a selected list of scientific and technical societies. The guide will be helpful in developing or expanding programs to train highway safety engineering technicians.

A basic curriculum for a certificate program in civil engineering technology was developed by the California State Department of Education in 1963. This curriculum was based upon job descriptions and analyses supplied by industry throughout California. An analysis of the job descriptions and job analyses showed that 57 percent of the civil engineering technician's time was spent in activities involving instruments, drawings, reports, records, handbooks, equipment, materials, and activities in production. The remainder of the time was spent in the following activities: planning, 13 percent; supervising, 12 percent; coordinating, 10 percent; and inspection, 8 percent. Recent efforts by Booz, Allen and Hamilton, Inc., (1968) and the Stanford Research Institute (1969) identified the scope of highway engineering technology, the duties involved, entering education requirements, entering experience requirements, and special training required upon appointment to the position of highway safety engineering technician. Both preparatory and in-service training is recognized as being essential to successful job performance. The focus of the basic curriculum developed by the Stanford Research Institute is on the multidisciplinary approach to training. It is structured so that resources from several disciplines and skill areas are combined. These disciplines currently exist in most of the community-junior colleges.

The New York State Department of Transportation and the New York State Department of Education collaborated to plan and develop the following highway technology subject area teacher's guides: *Highway Drawing* (Unit 11) (1968); *Elements of Highway Planning* (Unit IV) (1969); *Soils and Drainage* (Unit V) (1967); and *Highway Design and Estimating* (Unit VI) (1968). Additional materials are being planned and will be prepared in final form on a priority schedule identified by the New York State Department of Transportation. These will encompass the following subject areas in the order shown: highway construction and inspection, highway maintenance, and traffic engineering. The existing materials consist of lesson plans arranged in a two-column outline format. The content topics and sub-topics are listed in one column. Suggested teaching points and techniques are given in the second column. Each lesson plan includes references, lesson objectives, questions for review, and student assignments. Because the material is designed specifically for employed personnel, simulated skill building exercises are not emphasized to a great degree. However, student practices are integrated into the curriculum when feasible, particularly in the subject areas of highway drawing and highway estimating.

Motor Vehicle Inspection: Most states which require periodic inspection of motor vehicles have developed instruction manuals for motor vehicle inspection personnel. These manuals are the foundations from which the state's motor vehicle inspection programs are developed and will serve as a basis for developing training programs within the states. The subject elements incorporated within a manual are based upon the provisions of the individual state's motor vehicle inspection laws.

Initial efforts to determine the scope of motor vehicle inspection, the duties required of the motor vehicle inspector, and special training and/or experiences necessary for entry and advancement in the field have been made by Booz, Allen

and Hamilton, Inc., (1968) and the Stanford Research Institute (1969).

The American Association of Motor Vehicle Administrators (1970) has developed *Periodic Motor Vehicle Inspection: A Course of Study for Uniform Inspection Procedures.* This material, which includes 148-35mm slides and a discussion guide, is to be used by the course instructors to provide motor vehicle inspectors with information necessary to conduct standardized inspections. The material is based on inspection specifications previously prepared by the American Standards Institute and the Automobile Manufacturers Association. The material applies to passenger cars and motorcycles. Commercial vehicles and buses are not included. The material is to be supplemented by vehicle inspection manuals furnished by each state.

An instructor's manual for a three-week course in administration and supervision of motor vehicle inspection was prepared by the Traffic Institute, Northwestern University (1970) under contract with the Automobile Safety Foundation and the Highway Users Federation for Safety and Mobility. This material is divided into several units which include unit objectives, suggested methods of instruction, time allotments, lesson outlines, and suggested references.

Motor vehicle inspection curriculum materials developed by the State of Kentucky (1968) are directed to teaching information, demonstrating actual inspection procedures, and on-hands practice of motor vehicle inspection. Instructional materials include an instructor's manual, lesson plans, 35mm film strip with audio tape, and criterion tests.

Traffic Engineering Technician: Koert (1969) outlined the work and educational requirements for the traffic engineering technician and developed a basic, flexible curriculum for a two-year program in traffic engineering technology. His curriculum guide, *Traffic Engineering Technician Programs in the Community College,* includes basic science and technical and nontechnical courses. Koert suggests that local traffic characteristics, student characteristics, and existing training programs should be considered in planning programs for training traffic engineering technicians. A careful study of local employment needs should be made with the assistance of a local advisory committee to determine elements needed in local programs of instruction.

Booz, Allen and Hamilton, Inc., (1968) and the Stanford Research Institute (1969) have delineated the entry and refresher training needed by traffic engineering technicians.

The New York State Department of Education and the New York State Department of Transportation jointly developed a training program for traffic engineering technicians to upgrade employed highway traffic engineering technicians. An outline of subject elements incorporated in the Highway Planning Section of this program consists of lesson plans arranged in a two-column format. The materials include both subject matter and suggested teaching techniques. Some student practice exercises are presented.

Alcohol in Relation to Highway Safety: The North Carolina Department of Community Colleges has developed curriculum materials for use in training breath examining specialists. This material is in loose-leaf notebook form to allow for rapid changes in breath examining procedures, as well as the addition of new materials.

Training materials for breath examining specialists are being developed under contract with the U.S. Department of Transportation. These materials, which should be available in late Summer 1971, will be pilot-tested and adopted in programs of instruction throughout the country.

Training materials are available from the University of Indiana, which offers breath examiner courses as requested by various agencies responsible for enforcing impaired driving laws. It is recommended that *Alcohol and the Impaired Driver* (American Medical Association, 1968) be considered as a textbook for breath examiner programs. Dubowski's (1970) publication, *Measurement of Ethyl Alcohol in Breath* will also serve as resource material. These materials are cited in the bibliography.

Booz, Allen and Hamilton, Inc., (1968) and the Stanford Research Institute (1969) have delineated the duties of the breath examiner specialist and the special training and/or experience necessary for his entry and advancement in the field.

Pedestrian Safety: Materials relative to pedestrian safety are available on a piecemeal basis from several sources. Two sources, the National Safety Council and the American Automobile Association, have long been alerted to the need for community action programs in pedestrian safety. Consequently, they have produced numerous materials concerning the engineering, education, and enforcement aspects of pedestrian safety. Textbooks in the areas of traffic and highway engineering, police traffic supervision, police traffic law enforcement, and driver teacher education contain units relative to pedestrian safety. These are available from several commercial publishing houses. Such materials will assist curriculum developers in conceptualizing the area of

pedestrian safety and in preparing appropriate training materials.

Driver Licensing: Existing materials related to driver education and law enforcement may contain subject elements related to driver license examining. Curriculum materials directly related to driver license examining may be acquired from state agencies conducting training programs in this area.

Driver license examining training materials developed under contract with the U.S. Department of Transportation are to be available in August, 1971. These materials will assist in organizing and managing programs of instruction at community-junior colleges, area vocational schools, technical institutes, and various governmental agencies involved with driver licensing. It is anticipated that the materials will be adopted in several programs of instruction across the United States in the near future.

Booz, Allen and Hamilton, Inc., (1968) and the Stanford Research Institute (1969) have delineated the duties of driver license examiners and the training and experience necessary for entering the occupation.

Debris Hazard Control and Cleanup: Curriculum materials for wrecker operator training need to be developed. Existing materials in the area of accident investigation have some application to wrecker operations, including pre-scene activities and emergency medical services. Curriculum materials in automobile body and fender repair relate to the mechanics of extricating trapped persons from wrecker vehicles. Since wrecker operators may be called upon to perform minor service and repair tasks on stalled or partially disabled vehicles, materials relative to automotive service and repair have some application to wrecker operations. Curriculum materials relative to handling hazardous materials at the scene of accidents are desperately needed for programs in debris hazard control and cleanup.

Advisory committees composed of persons involved in debris hazard control and cleanup functions should be called upon to assist in developing training materials.

Motorcycle Safety: Motorcycle safety curriculum planners may obtain materials from the Metropolitan Life Insurance Company, National Safety Council, American Association of Motor Vehicles Administrators, and American Automobile Association.

The Traffic Institute of Northwestern University (1964) developed an instructor's manual for training motorcycle riders. Two accompanying publications, a manual for motorcycle riders and a motorcycle operator's evaluation instrument, are also available.

Commitment of Participating-Consultants

Each participating-consultant prepared a tentative plan of action for his commitment in the future development and expansion of highway safety occupational programs. A copy of the outline used to develop the tentative plan of action is included in Appendix K. Each of the participating-consultants prepared a plan of action which in every case included a positive plan of short-range and long-range bases. Every tentative plan of action included a commitment to encourage the development and expansion of occupational training in highway safety areas in addition to the area of specialty of the person preparing the plan of action. This indicates that the project-related experiences of the participating-consultants helped them to more clearly visualize the need for their total commitment in all areas of highway safety occupational training.

Short-range tentative plans of action can be classified into four groups. The type of short-range plan included in most plans of action was a "seeking of information" section. A majority of the participating-consultants planned to return to their respective jobs and seek information concerning: 1) who is responsible for highway safety (local, state and federal officials), 2) who is responsible for highway safety occupational training, and 3) what is being done to prepare people in all areas of highway safety occupations. This information was to be sought from both local and state authorities. A second type of short-range plans of action could be classified as "determining the need." Without exception, every tentative plan of action indicated the short-range goal of seeking manpower data and determining highway safety priorities. This indicated that the participating-consultants are interested in promoting training programs but realize the need to develop such programs around well established and recognized needs and priorities.

The third classification of short-range goals could be classified as "distributing public information." Slightly less than half of the participating-consultants indicated a short-range goal of making their institutional or agency staff and the public within the community aware of the seriousness of the problem of highway safety. Their intent was to supply public information that could be influential in the promotion of educational programs providing training in highway safety. Several people stressed the importance of the

public information effort as a means of helping people become more aware of the need for highway safety. They indicated this information was essential to the public even though it may be for purposes other than promoting occupational training programs.

The fourth type of short-range goal could be classified as "program expansion or development." Slightly more than two-thirds of the participating-consultants listed a short-range goal of implementing highway safety occupational training in existing programs or the development of a new program for this purpose. Although in most cases these plans were not specific, indications were that short-range goals included the development of units within an existing course or courses, the development of a new course, and/or the development of short-term in-service training programs. In some cases, the short-range plan was designed for safety areas outside the individual's area of specialty. This, again, indicates self confidence and a determined attitude in the part of the participating-consultants for a comprehensive program in highway safety training.

The long-range plans, in most cases, were an elaboration and general expansion of the short-range plans. In general, the long-range plans indicated a more comprehensive approach to highway safety occupational training than could be identified in short-range plans. Since the long-range plans were specified as plans to be implemented within the next five years, several individuals indicated insecurity in specifying plans of action for this length of time. One of the primary reasons for their reluctance toward long-range planning seemed to be the instability of the financial system with which most education institutions are faced at this time.

In a number of instances, the long-range plans included an effort to hold workshops or other similar activities within a given state to promote the development and expansion of highway safety occupational programs. In two different cases (Texas and Oregon) occurring within the three regional workshops, the people participating from one state decided they would combine their efforts and work as a team for promoting highway safety occupational training in their state.

In every case, the short-range and long-range plans of action included the involvement of the highway safety representative from the governor's office. There were strong indications from all of the participating-consultants that these representatives were the key people to begin working with to develop and establish the need for training and long-range plans for highway safety occupational training in their state.

Most of the participants noted that other agencies or institutions already operating manpower development programs for highway safety occupations should continue to do so or should work with local educational institutions to transfer the program to a public educational institution. New and expanding vocational or technical programs for highway safety manpower should avoid duplicating programs already in operation through other agencies. These expanded efforts to meet the manpower requirements for highway safety should be complementary and noncompetitive with existing quality programs.

Program Implementation Problems or Barriers: The participating-consultants listed problems or barriers which must be considered in expanding, upgrading, or developing occupational preparation and in-service programs in highway safety. These are shown in Table 3.

TABLE 3

Problems or Barriers in Highway Safety Occupational Preparation Program Implementation

Problem or Barriers	Number of Responses	Percent of Responses
Financing Programs	30	41.1
Determining Manpower Needs, Employment Opportunities	15	20.5
Staffing Programs	10	13.7
Developing or Identifying Curriculum Materials	7	9.6
Recruiting Students for Programs	5	6.9
Lack of Occupational Function or Task Analysis	4	5.5
Program Approval of Institutional Governing Board	2	2.6

The three primary problems or barriers to program implementation listed by the participating-consultants were: financing programs (money for facilities and equipment), determining manpower needs and employment opportunities, and staffing these programs once they are developed.

Among the problems identified, the following significant observations were made.

1) There is no central authority within the local municipalities to whom vocational-technical educators may turn for determining local manpower needs or highway safety priorities. In most cases, the manpower data possessed by the governor's representative are not specific enough for justifying occupational programs at the local institutional level.

2) None of the vocational-technical educators involved in this project knew of a representative on the National Vocational Advisory Committee or any state advisory committee who possesses knowledge of the manpower needs in highway safety.

3) There exists a confusing classification of highway safety manpower at the state and local levels, which increases the difficulty of describing the work force for highway safety and of expressing the needs in this area. The resulting nonstandardized classification almost necessitates separate job and task analyses for each municipality prior to designing the training program to provide the needed manpower.

4) The *Dictionary of Occupational Titles* and the U.S. Office of Education Occupational training report codes do not identify highway safety occupations. This contributes to such problems as the lack of standardized job classifications and the inadequate data on manpower being trained annually for highway safety. Lack of identification also makes it more difficult to provide students with appropriate occupational information on the highway safety occupations.

Assistance Needed to Overcome Program Implementation Problems and Barriers: The 48 participating-consultants listed several types of assistance which are needed if successful highway safety occupational training programs are to be developed and implemented. These are shown in Table 4.

TABLE 4

Assistance Needed to Successfully Implement Highway Safety Occupational Training Programs

Type of Assistance	Responses	Percent of Responses
Financial Aid (Federal, State and Vocational Funds)	21	42.9
Curriculum Materials	8	16.3
Assistance from Program Advisory Committees	7	14.3
Public Information Program to Promote Public Awareness and Understanding of Highway Safety Occupations	5	10.2
Research in Manpower Needs	4	8.2
Occupational Task Analysis	4	8.2

SUMMARY AND CONCLUSIONS

The purpose of the project was to expand vocational and technical education programs to accommodate highway safety manpower requirements.

Methods utilized included the development of a model incorporating highway safety program objectives and skilled or technical highway safety occupations. A survey was conducted to locate established vocational and technical programs, to identify leading educational personnel, and to collect curriculum material. Selected educators served as project participating-consultants in analyzing and interpreting data and in recommending program expansion and development plans.

On the basis of the findings of this project, the following conclusions seem warranted:

1. The future expansion and development of highway safety occupational preparation programs in the public vocational-technical educational system is dependent upon wider knowledge of state and local highway safety programs and National Highway Safety Standards and upon more specific manpower data at the state and local level. This data must identify specific occupations and contain past employment figures, present and future placement opportunities, and career ladders and lattices within each occupational area. The collection and interpretation of this data is the responsibility of both the highway safety authorities and vocational-technical educators.

2. While vocational educators have identified the lack of money and the lack of job market data as the two most critical roadblocks to developing programs, it might well be that the lack of data is most crucial. Dollars are most generally found for top priority training. What places a training program in top priority are the manpower needs and the number of documented job openings. Furthermore, there appears to be a great deal of job market data available, but it is not in the form needed by educators to develop new vocational and technical programs.

3. Some specific highway safety occupations (see pp. 28-29) have been identified for which vocational-technical education programs or courses do exist and others which can and should be developed on a priority basis. These priorities represent a national picture for vocational-technical education but do not necessarily represent national highway safety priorities. Local programs must be developed on a priority basis as established jointly by appropriate vocational educators and highway safety authorities.

4. Vocational-technical education has the charge of developing competent manpower in all communities for all occupations considered nonprofessional. Highway safety manpower of a technical or highly skilled nature is accepted as being most effectively developed at the post-secondary level (community-junior college or technical institute) rather than at the secondary education level of occupational preparation.

5. In most post-secondary occupational preparation institutions there exists a basic program or curriculum whereby one or more of the highway safety priority occupations (accident site investigator, driver license examiner, and pedestrian safety program specialist being the exceptions) could be provided as an optional specialty. On a limited basis, specialty programs are now offered at post-secondary institutions for training emergency medical technicians, highway safety engineering technicians, and traffic patrolmen.

6. Vocational education must be able to respond to longer-term training programs and programs with pre-employment training objectives. Short-term highly specialized programs may be most appropriate for other state and federal agencies. Most state and federal governmental agencies are not allowed to conduct programs which train people for new careers or different careers from ones in which they are presently engaged. They are allowed only to offer upgrading of in-service education. Since these state and federal governmental agencies are qualified and capable and have performed adequately in this role, vocational education should tend to emphasize "longer-term preservice" training programs where possible.

7. Literature suitable for development as curriculum materials exists for developing training programs in the 11 priority highway safety occupations (see pp. 44-45). These materials lack national standardization and thus vary widely in applicability and validity. A limited number of course guides and instructor's manuals are available in some of the occupational areas.

8. Short-range (1 year or less) efforts for vocational-technical educators in developing and expanding highway safety occupational programs are limited to their becoming better informed personally in the entire area of highway safety, determining specific highway safety manpower needs locally, determining adjustments or additional short-term courses within existing occupational programs, and assisting in disseminating

public information concerning highway safety needs.

9. The present instability of local and state financing for public educational institutions and programs leaves vocational educators with less specific long-range (2 to 5 years) plans for developing and expanding highway safety occupational training. The general long-range plans for highway safety occupational programs are extensions of short-range plans with added emphasis on determining goals and objectives in cooperation with highway safety authorities.

10. The primary barriers to developing and expanding highway safety occupational programs are: 1) lack of information and materials to permit adequate program development and support, 2) insufficient manpower data, and 3) the difficulty of recruiting qualified staff and interested students.

11. Vocational and technical education planners may rely on several sources in overcoming problems (pp. 64-65) concerning program development and expansion: highway safety authorities, present highway safety specialists, program advisory committees, those responsible for establishing vocational education funding priorities, public information specialists, and curriculum development specialists.

12. Through the conduct of the project, observations were made that certain knowledge and skills common to all or many highway safety occupations may warrant the development of a core curriculum for these training programs.

13. Vocational-technical education has the capacity for, and will accept in part, the charge and challenge of providing programs to accommodate highway safety manpower requirements.

RECOMMENDATIONS

In light of the results of the project investigation, the following recommendations are made:

Highway Safety and State and Local Programs

1. An effort should be made to have highway safety representatives on state and national vocational and technical education advisory committees. These committees should have data indicating manpower needs, forecasts, and present training capacities for highway safety occupations.

2. A team of state and local highway safety authorities and vocational-technical educators should be drawn together in those states with the greatest highway safety manpower needs to develop a statewide plan for highway safety manpower development.

3. The vocational and technical education authorities at the local and state levels should work with highway safety authorities to determine the priority of highway safety manpower needs in relation to other local and state manpower needs.

Highway Safety Occupations

1. Additions or revisions in the *Dictionary of Occupational Titles* should be made to identify the occupations within the highway safety area. This should aid in standardizing the occupational classifications within the highway safety work force.

2. The NHTSA should continue to develop a task analysis for each highway safety occupational category and to provide these analyses to agencies or institutions for the purpose of developing an instructional analysis and implementing an educational training program.

3. Additional NHTSA manpower development funds should be made available to gather manpower data and perform job and task analysis. This information should serve to facilitate the appropriate expenditures of other manpower development funds within highway safety occupational preparation.

4. Highway safety specialists and authorities should assist local vocational and technical education administrators to identify the priority needs in highway safety occupations, to identify the occupational classifications, and to specify the local job openings available for trained people in these occupations.

5. Additions or revisions in the U.S. Office of Education Occupational Codes list should identify the occupations within the highway safety area. This would aid in the annual reporting of training within the highway safety area and the acquisition of data necessary for manpower development.

Career Literature

1. Additional literature and informational programs identifying career opportunities in the skilled and technical highway safety occupations should be developed and made available to potential students, school counselors, and parents.

2. Career opportunities in highway safety occupations should be written into the occupational exploration and orientation curricula being developed by many school systems for the kindergarten through tenth grade levels of education.

Training Programs

1. The public education system for vocational and technical education should be called upon to provide manpower development for those highway safety occupations with the greatest priority needs and for which this level of training is most applicable.

2. Vocational and technical education institutions must provide training programs to accommodate a variety of manpower needs in highway safety. These programs may range from the two-year associate degree level to a certificate program to a short course for upgrading or retraining. The educational program must be designed specifically to prepare individuals for identified job openings or needs.

3. Vocational and technical education funds should be provided to expand, extend and/or develop highway safety occupational programs where identifiable local and state priorities so indicate. Several of the highway safety occupational programs would be appropriate expenditure of funds from the 1968 Vocational Education Amendments for new and emerging occupations.

4. Competent highway safety operations people with an interest in and qualifications for teaching should be identified as possible instructors for future occupational preparation programs in highway safety.

5. Training institutes for preparing instructors of highway safety occupational programs to effectively utilize newly developed NHTSA instruc-

tional materials should be planned and held to expedite updating and development of occupational preparation programs.

Curriculum and Materials

1. A task analyses study should be made for each of the highway safety occupations to determine the commonality of tasks among the various occupations. If sufficient commonality does exist, core curricula should be developed for efficiency and effectiveness in training programs.

2. Additional course guides and curriculum materials should be developed in those occupational areas where present materials are absent or unacceptable to the occupational field. These guides and materials should be based on a task analysis of the occupations for which training is to be conducted.

3. All course guides, instructor's manuals and other curriculum materials for highway safety occupational programs should be documented in the Vocational and Technical Education Resource Information Center (ERIC). This documentation will enable educators to have access to the materials through the ERIC dissemination system and through the *Abstracts of Instructional Materials* published by The Center for Vocational and Technical Education, The Ohio State University.

APPENDIX A

Letter of Explanation and Instrument to Identify Existing and Planned Highway Safety Instructional Activities

The Center For RESEARCH AND LEADERSHIP DEVELOPMENT IN

Vocational and Technical Education

THE OHIO STATE UNIVERSITY
1900 KENNY ROAD
COLUMBUS, OHIO 43210

The Highway Safety Act of 1966 and the National Traffic and Motor Vehicle Safety Act of 1966 have placed emphasis on the safety of our most important transportation system, the highway. Yet over 450 people lost their lives on the highways of America as we recently celebrated the Fourth of July.

One problem in increasing the effectiveness of our highway safety programs seems to be in the lack of people prepared to successfully perform the various jobs dealing with highway safety. Therefore, the United States Department of Transportation has contracted with The Center for Vocational and Technical Education to conduct a project entitled "Expansion of Vocational-Technical School Programs to Accommodate Highway Safety Manpower Requirements."

To accomplish the objectives of the project we need to identify specific instructional or training programs of less than baccalaureate degree level from which we may collect information concerning the curriculum being offered. We would appreciate it if you could assign one of your very capable staff members to assist us in this task of identifying specific programs, either presently operating or planned for the fiscal year 1970-71.

The enclosed form gives a brief and general description of the occupational categories encompassed by highway safety. It would be most helpful if the assigned staff member would list the information requested for those programs or courses being offered in your state or area that prepare individuals for work within each of the general occupational categories described. Your assistance in returning the completed form by no later than August 15, 1970, is extremely important and would be most appreciated.

I have asked Dr. Ronald Daugherty, director of this project, to work with you and your staff concerning this request and in future contacts that may be necessary. Should questions arise with regard to the requested materials, please feel free to call him collect at (614) 486-3655, Extension 249. Your return of the enclosed post card indicating action you have taken would be appreciated.

Sincerely,

Robert E. Taylor
Director

RET
RD/mml

Enclosures

This letter sent to: State Directors of Vocational Education
State Directors of Community-Junior Colleges
Regional Directors of Manpower Development and Training Program

IDENTIFICATION OF EXISTING AND PLANNED HIGHWAY SAFETY INSTRUCTIONAL ACTIVITIES

Name and title of person completing form: _____

Address: _____ (City) _____ (State)

Telephone Number: Area Code ( ) _____

Note: *If additional space is needed, please use the back of this form or extra pages to enter programs or courses.

Occupational categories having entry level requirements of less than baccalaureate degree	Title or brief description of program	Name of agency or institution offering program	Name, complete address and telephone number of person in charge of program
A. MOTOR VEHICLE INSPECTION: Instructional programs or courses preparing personnel to inspect motor vehicles to to insure properly equipped and maintained vehicles in safe working order.			
B. MOTORCYCLE SAFETY: Instructional programs or courses preparing personnel to insure that motorcycles, motorcycle operators, and their passengers meet standards which contribute to safe operation and protection from injuries.			
C. DRIVER EDUCATION: Instructional programs or courses preparing personnel to teach, assist in teaching, or to insure that other individuals are teaching people to drive skillfully and safely as possible under all traffic and roadway conditions. (Preparation for positions requiring less than baccalaureate degree.)			
D. VEHICLE AND DRIVER LICENSING AND REGISTRATION: Instructional programs or courses preparing personnel to develop, enforce, and implement effective and uniform licensing and registration procedures for all motor vehicles and motor vehicle operators.			

Occupational categories having entry level requirements of less than baccalaureate degree	Title or brief description of program	Name of agency or institution offering program	Name, complete address and telephone number of person in charge of program
E. TRAFFIC CODES, LAWS AND RECORDS: Instructional programs or courses preparing personel to plan, organize, collect and/or disseminate data on traffic codes, laws, accidents, drivers, motor vehicles and roadways.			
F. TRAFFIC COURTS: Instructional programs or courses preparing individuals to assist in the operation of traffic court procedures and proceedings. (Preparation for positions requiring less than baccalaureate degree.)			
G. ALCOHOL IN RELATION TO HIGHWAY SAFETY: Instructional programs or courses preparing individuals to conduct examinations and tests to measure alcohol levels in motor vehicle operators, or to inspect, advise and train state and local alcohol program personnel.			
H. TRAFFIC CONTROL DEVICES (signs, signals, road striping, etc.): Instructional programs or courses preparing personnel for roles in the application of modern traffic control device developments, maintenance and operation, and in implementing uniform standards for traffic control devices.			
I. PEDESTRIAN SAFETY: Instructional programs preparing personnel for pedestrian safety roles in street, highway and community planning, street and highway crossing supervision and street and highway crossing guard procedures.			
J. DEBRIS HAZARD CONTROL AND CLEANUP: Instructional programs or courses preparing personnel for roles as technicians and specialists in debris hazard control and cleanup.			

Occupational categories having entry level requirements of less than baccalaureate degree	Title or brief description of program	Name of agency or institution offering program	Name, complete address and telephone number of person in charge of program
K. POLICE TRAFFIC SERVICES: Instructional programs or courses preparing personnel for traffic police roles as supervisors, coordinators, or officers, patrolmen, traffic specialists and communications personnel to help minimize accidents, to assist in post accident procedures and to bring these responsible for the the accidents to justice.			
L. HIGHWAY DESIGN, CONSTRUCTION, AND MAINTENANCE: Instructional programs or courses preparing personnel for highway safety roles as planners, supervisors, technicians and specialists in highway design, construction, and maintenance activities.			
M. EMERGENCY MEDICAL SERVICES: Instructional programs or courses to train personnel for roles as planners, supervisors, technicians and specialists in emergency care systems to provide immediate medical aid to accident victims.			
N. IDENTIFICATION AND SURVEILLANCE OF ACCIDENT LOCATIONS: Instructional programs or courses preparing personnel for roles as specialists ir identifying unsafe sections of street and highways in order that procedures for improvements might be implemented.			
O. SCHOOL BUS SAFETY: Instructional programs and courses preparing personnel for safety roles in supervising school transportation systems or in operating school vehicles.			
P. PLANNING AND ADMINISTRATION: Instructional programs or courses preparing personnel to plan and/or administer overall highway safety programs and activities.			
Q. OTHER: Instructional programs or courses preparing personnel for occupations requiring highway safety skills and knowledge, but not within the confines of the above categories.			

APPENDIX B

Letter of Explanation and Instrument
Soliciting Information Concerning
Highway Safety Programs and Courses

The Center For RESEARCH AND LEADERSHIP DEVELOPMENT IN

Vocational and Technical Education

THE OHIO STATE UNIVERSITY
1900 KENNY ROAD
COLUMBUS, OHIO 43210

The United States Department of Transportation has contracted with The Center for Vocational and Technical Education, The Ohio State University for a project on highway safety. The purpose of the project is to identify outstanding occupational education programs and individual courses preparing people for jobs involving a significant degree of highway safety work. An analysis of the programs and courses will eventually result in recommendations to the National Highway Safety Bureau regarding future needs in highway safety instruction.

Recommendations of outstanding programs or courses and people to contact who had knowledge of these activities were made by Regional Manpower Development and Training Program Specialists, State Directors of Community-Junior Colleges, and State Directors of Vocational Education. Your name was suggested as a person from your state who meets these criteria.

Highway safety is one of the most serious problems facing the people of our country today. Your assistance is vital in the effort to improve highway safety.

Would you please become a part of this important study by completing the enclosed form and returning it no later than August 21, 1970. The supplemental materials requested should also be sent no later than this same date.

If circumstances do not permit you to complete this entire form at this time, please identify the applicable programs and/or courses and return the form along with the supplementary materials requested in Section IV. We will contact you at a later date for the additional information.

Thank you for your assistance. It is very important that all applicable portions of the form be completed and all possible supplemental materials be sent to us. Your assistance in this project is very necessary and will ultimately contribute to highway safety. Should there be any questions regarding the information requested please do not hesitate to call me *collect* at area code 614, 486-3655.

Sincerely,

Ron Daugherty, Director
Transportation Project

RD/mml
Enclosure

"Highway Safety Categories"

Please provide information on *all* programs and/or courses offered by your institution that fit within one or more of these categories of highway safety.

A. MOTOR VEHICLE INSPECTION: Any instructional programs or courses preparing personnel, as part of their job, to inspect motor vehicles to insure properly equipped and maintained vehicles in safe working order.

B. MOTORCYCLE SAFETY: Any instructional programs or courses preparing personnel, as part of their job, to insure that motorcycles, motorcycle operators, and their passengers meet standards which contribute to safe operation and protection from injuries.

C. DRIVER EDUCATION: Any instructional programs or courses preparing personnel, as part of their job, to teach, assist in teaching, or to insure that other individuals are teaching people to drive skillfully and as safely as possible under all traffic and roadway conditions. (Preparation for positions requiring *less* than baccalaureate degree.)

D. VEHICLE AND DRIVER LICENSING AND REGISTRATION: Any instructional programs or courses preparing personnel, as part of their job, to develop, enforce, and implement effective and uniform licensing and registration procedures for all motor vehicles and motor vehicle operators.

E. TRAFFIC CODES, LAWS AND RECORDS: Any instructional programs or courses preparing personnel, as part of their job, to plan, organize, collect, and/or disseminate data on traffic codes, laws, accidents, drivers, motor vehicles, and roadways.

F. TRAFFIC COURTS: Any instructional programs or courses preparing individuals, as part of their job, to assist in the operation of traffic court procedures and proceedings. (Preparation for positions requiring *less* than baccalaureate degree.)

G. ALCOHOL IN RELATION TO HIGHWAY SAFETY: Any instructional programs or courses preparing individuals, as part of their job, to conduct examinations and tests to measure alcohol levels in motor vehicle operators, or to inspect, advise, and train state and local alcohol program personnel.

H. TRAFFIC CONTROL DEVICES (signs, signals, etc.): Any instructional programs or courses preparing personnel for roles, as part of their job, in the application of modern traffic control device developments, maintenance and operation, and in implementing uniform standards for traffic control devices.

I. PEDESTRIAN SAFETY: Any instructional programs preparing personnel, as part of their job, for pedestrian safety roles in street, highway, and community planning, street and highway crossing supervision, and street and highway crossing guard procedures.

J. DEBRIS HAZARD CONTROL AND CLEANUP: Any instructional programs or courses preparing personnel, as part of their job, for roles as technicians and specialists in debris hazard control and cleanup.

K. POLICE TRAFFIC SERVICES: Any instructional programs or courses preparing personnel, as part of their job, for traffic police roles as supervisors, coordinators, or officers, patrolmen, traffic specialists, and communications personnel to help minimize accidents, to assist in post-accident procedures, and to bring those responsible for the accidents to justice.

L. HIGHWAY DESIGN, CONSTRUCTION, AND MAINTENANCE: Any instructional programs or courses preparing personnel, as part of their job, for highway safety roles as planners, supervisors, technicians, and specialists in highway design, construction, and maintenance activities.

M. EMERGENCY MEDICAL SERVICES: Any instructional programs or courses to train personnel, as part of their job, for roles as planners, supervisors, technicians, and specialists in emergency care systems to provide immediate medical aid to accident victims.

N. IDENTIFICATION AND SURVEILLANCE OF ACCIDENT LOCATIONS: Any instructional programs or courses preparing personnel, as part of their job, for roles as specialists in identifying unsafe sections of streets and highways in order that procedures for improvements might be implemented.

O. SCHOOL BUS SAFETY: Any instructional programs and courses preparing personnel, as part of their job, for safety roles in supervising school transportation systems or in operating school vehicles.

P. PLANNING AND ADMINISTRATION: Any instructional programs or courses preparing personnel, as part of their job, to plan and/or administer overall highway safety programs and activities.

Q. OTHER: Any instructional programs or courses preparing personnel, as part of their job, for occupations requiring highway safety skills and knowledge, but not within the confines of the above categories.

TRANSPORTATION PROJECT

THE CENTER FOR VOCATIONAL
AND TECHNICAL EDUCATION

THE OHIO STATE UNIVERSITY
1900 Kenny Rd., Columbus, Ohio, 43210

REVIEW OF
HIGHWAY SAFETY
PROGRAMS AND COURSES

REVIEW OF EXISTING AND PLANNED HIGHWAY SAFETY INSTRUCTIONAL ELEMENTS

Name and address of agency or institution providing training:

_____

_____

_____ (Zip)

Name of person in charge of department or program:

_____

_____

Telephone No.: (Area Code _____

Instructions for completing review form:

Information is needed for all types of existing and planned instructional activities in preparing people for occupations that include highway safety activities as a portion of the job. Such activities form the basis for controlling the conditions of highways, streets, traffic control devices, motor vehicles and vehicle drivers to secure pedestrians, vehicle operators, and vehicle passengers from hurt, injury, or loss. To facilitate identification of information, please read carefully the following review guidelines:

1. *Determine if the instructional activity is a "program" or a "course."* It is intended that "program" mean a set of courses in a given occupational area. A "course," on the other hand, is a series of related experiences dealing with a particular subject and may or may not necessarily be part of a "program."

2. *Review the entire form before completing any parts.* Provisions are made for an analysis of "programs" in SECTION I, and "courses" in SECTION II. SECTION III and SECTION IV are concerned with acquiring information related to both "programs" and "courses."

3. *Read carefully the instructions for completing each section and items within each section.*

4. *Complete all sections that have application to the instructional activities.* If the activities are "programs," all sections should be completed. If the activities are "courses," only SECTION II, SECTION III, and SECTION IV should be completed. *It is important that the courses that make up programs encompassing highway safety be included in SECTION II. All other separate courses encompassing highway safety should also be included in SECTION II.*

5. If space does not permit listing all programs or courses, or for providing important information under various items, please use the front page of the form or use additional paper.

SECTION I: PROGRAMS

A. Name or brief description of each program.	B. Occupation(s) for which program is designed to prepare students.	C. Extent of time allotted for program. (Write in information.)			
		Years	Months	Weeks	Days
1.					
2.					
3.					

* To complete items G and H, please refer to the *programs* in item A, SECTION I, and mark only the Program Number in each appropriate check space provided. Since there may be multiple choices, one or more programs may have application to more than one check space.

G. Student prerequisites for entering each program:

_____ Must be employed

_____ Must be unemployed

_____ Must have completed the 10th grade

_____ Must have a high school diploma or the equivalent

_____ Must have passed the _____ (specify) exam for entrance

_____ Must meet certain physical requirements (specify)

_____ Other _____ (specify)

SECTION II: COURSES

A. Name or brief description of each course.	B. Number students currently enrolled in course.	C. Extent of time allotted to course. (Write in information.)		
		Months	Weeks	Total Clock Hours
1.				
2.				
3.				
4.				
5.				

* If you have more courses, please list those that more closely relate to highway safety in the spaces provided and list others on the front page of the form or use additional paper.

D. Number students enrolled in program.	E. Is program accredited? If "yes," specify by what agency or association.	F. Credit received for completion of program. (Mark an X in appropriate space.)		
		Associate Degree	Certificate	Other (specify)

H. Student options upon completing program:

_____ May enter employment immediately in a specialized field

_____ May enter employment immediately in several specialized fields

_____ May transfer to other programs with credit acknowledged for this program

_____ Other _____ (specify)

I. Other Comments: (Please use this space to provide further program information.)

D. Occupation(s) for which course is designed to prepare students.	E. Credits received for completion of course. (Mark an X in appropriate space.)			
	Certificate	Semester Hours	Quarter Hours	Other (specify)

* To complete items F through M, please refer to the courses in item A, SECTION II, and mark only the Course Number in each appropriate check space provided. Since there may be multiple choices, one or more courses may have application to more than one check space.

F. Nature of courses:

_____ In-service refresher short course
_____ In-service new concepts, new skills orientation (upgrading)
_____ Conference workshop activities
_____ Segment of total program
_____ Other _____ (specify)

G. Instructional setting:

_____ Classroom lecture
_____ Simulated classroom and laboratory activities
_____ Planned field activities
_____ Part-time classroom, part-time on-the-job (cooperative)
_____ Other _____ (specify)

H. Instructional staff:

_____ One full-time instructor
_____ Instruction is conducted jointly by several persons within the institution
_____ Specialists are acquired on a part-time basis from outside the institution
_____ Other _____ (specify)

I. Instructional staff requirements:

_____ M.S. or B.S. degree required in related field of study (experience not required)
_____ Experience in related field only
_____ M.S. or B.S. degree in related field of study, plus at least two years of experience
_____ Other _____ (specify)

J. Student prerequisites for enrollment in the courses:

_____ Must be employed
_____ Must be unemployed
_____ Must have completed the 10th grade in high schooi
_____ Must meet certain physical requirements _____ (specify)
_____ Must have a high school diploma or the equivalent
_____ Must have passed the _____ (specify) exam for entrance
_____ Other _____ (specify)

K. Student options upon completing course:

_____ May enter full-time employment immediately
_____ May receive further training in same field by transferring to another agency or institution
_____ May enroll in other courses in same program
_____ May transfer to other programs with at least partial credit acknowledged for this course
_____ Other _____ (specify)

L. Agencies employing graduates:

_____ State Highway Departments
_____ City Governments
_____ County Governments
_____ Private Companies
_____ Public Schools
_____ Other _____ (specify)

M. Method for selecting subject matter content for programs or courses:

_____ Recommendations of local advisory committees
_____ Adoption of content from other training programs or courses
_____ Analyses of local job tasks for essential knowledge and skills
_____ Analyses of personal qualities necessary for effective work
_____ Analyses of community needs
_____ Other _____ (specify)

N. Sources of operational funds for programs (courses):

Source	*Approximate Percentage*
1. Federal	_____%
2. State	_____%
3. Local	_____%

O. Other Comments: (Please use this space to provide further course information that might clarify any of your responses above.)

SECTION III: PROGRAMS AND COURSES

Draw a circle around the word (or words) which best describes your response.

A. How effective is your institution in recruiting students for your programs (courses)?

More than Adequate Adequate Slightly Inadequate Very Inadequate

B. To what extent do your programs or courses identify with or relate to the national and state programs in highway safety?

Great Extent Moderate Extent Some Extent No Extent I Don't Know

C. To what extent do your program or course graduates continue to work in the fields for which the training has prepared them?

Great Extent Moderate Extent Some Extent No Extent I Don't Know

D. To what extent do you rely on the following sources for program or course guides and reference materials?

1. Vocational-technical curriculum materials center in your state.
   Great Extent Moderate Extent Some Extent No Extent

2. Vocational-technical curriculum materials centers in other states.
   Great Extent Moderate Extent Some Extent No Extent

3. Commercial publishers.
   Great Extent Moderate Extent Some Extent No Extent

4. Trade associations and societies.
   Great Extent Moderate Extent Some Extent No Extent

5. Other _____ (specify)
   Great Extent Moderate Extent Some Extent No Extent

SECTION IV: SUPPLEMENTARY ENCLOSURES

The limitations of this review form prohibit collection of certain essential program or course information. Please send the following elements in order that we might view your program or course in a proper and complete perspective:

A. Detailed description of programs or courses.

B. Objectives of program and course.

C. Program and course outlines.

D. Lists of suggested textbooks, references, and audiovisual aids.

E. Lists and budget items:
   1. Equipment, supplies, and facility lists, including costs.
   2. Facility and shop layouts.
   3. Costs for personnel staffing.

F. Estimated manpower needed *in your state* for occupations in which students are preparing (current and projected).

G. Please list the names and addresses of sources for other program (course) information, including sources for curriculum and instructional materials.

APPENDIX C

Selection Criteria for Workshop Participants

SELECTION CRITERIA FOR WORKSHOP PARTICIPANTS

Recommendations:

1. Participants selected should possess the attitude, ability, and willingness to initiate new programs in highway safety or to expand and/or revise existing highway safety programs.
2. Participants selected should be able to participate in all pre-workshop activities and contribute to the development of the in-service workshop packets. This may be through the reaction to instruments, papers, texts, highway safety materials, etc.
3. Participants selected should reflect different levels of responsibility for establishing highway safety programs.

A. State Level Personnel

1. Supervisors—Consultants

a. should be selected from personnel in those areas dealing with highway safety programs such as: (1) trades and industrial education; (2) health occupations; (3) distributive education; (4) public services specialists; (5) others having direct responsibility for highway safety occupational preparation programs.

Two or three states in each of the three regions should be represented by a state level person. The selection of these participants will be based upon (1) population of the state, (2) motor vehicle registration within the state, (3) number and kinds of highway safety programs in existance within the state, and (4) interest in developing and initiating new programs and/or expanding and revising present highway safety programs.

B. Community-Junior College Personnel

1. Administrators

a. presidents
b. deans of instruction
c. deans of occupational education
d. other administrators

2. Department chairmen
3. Instructors of highway safety programs

C. Area Vocational Schools and Secondary Schools

1. Administrators
2. Department chairmen
3. Instructors of highway safety programs

D. University Personnel from 2-year associate degree programs

1. Administrators
2. Department chairmen
3. Instructors of highway safety programs

The selection of the community-junior college, area vocational and secondary school, and the university personnel can be based upon (1) position (persons selected should be in a position responsible for initiating and expanding programs), (2) size of institution, (3) population of service area of the institution, (4) whether or not highway safety programs have been initiated in the institution, (5) interest in developing new highway safety programs, and (6) vehicle registration in state that institution is located.

4. An attempt will be made to secure at least one participant from each of the sixteen highway safety occupational classifications for each workshop.

Additional information for the selection of participants:

1. Lists of possible participants will be solicited from the following:
   1. U.S. Office of Education—
      a. DVTE
      b. MDTA
   2. American Vocational Association
   3. American Association of Junior Colleges
   4. U.S. Department of Transportation

   Also, a fairly comprehensive list of possible participants should be developed by the Expansion of Vocational-Technical School Programs to Accommodate Highway Safety Manpower Requirements Project through responses to requests for curriculum materials.
2. Initially, thirty (30) participants will be selected for each workshop. From these, the twenty (20) actual participants for each workshop will be selected.
3. In the event one region has an abundance of personnel with expertise in a programmatic area of highway safety in which another region is deficient, participants will be exchanged across regions to increase the overall efficiency of the workshops.

APPENDIX D

List of Participating-Consultants Attending Workshops

REGION I

MR. WILLIAM A. ABERNETHY
Coordinator, Chemical Tests for
Alcohol Training
Department of Community Colleges
112 West Lane Street
Raleigh, North Carolina 27602

MR. LEON M. DAIMS
Director, Continuing Education
Hudson Valley Community College
80 Vandenburg Avenue
Troy, New York 12180

MR. ESKIL S. DANIELSON
Program Coordinator
Morris County Community College
Route 10 & Centergrove Road
Dover, New Jersey 07801

DR. BERNARD T. FAGAN, Professor
Vocational-Education
College of Education
University of Kentucky
Lexington, Kentucky 40506

DR. JOHN B. HIRT, President
Beaver County Community College
609 Third Avenue
Freedom, Pennsylvania 12042

REV. PAUL C. HOYT
Part-time Instructor, Emergency
Medical Services
Ulster County Community College
Stone Ridge, New York 12484

MR. JOSEPH MATTSON
Associate Professor, Industrial Eng.
East Tennessee State University
P.O. Box 2502
Johnson City, Tennessee 37601

MR. OTIS MEHLBERG
Safety Specialist
Wisconsin Board of Vocational,
Technical and Adult Education
137 East Wilson
Madison, Wisconsin 53701

MR. RAYMOND C. MULLIN
Director of Safety Education
Millersville State College
Millersville, Pennsylvania 17551

MR. FRANK E. PRZYBYCIEN
Instructor, Civil Technology
Mohawk Valley Community College
1101 Sherman Drive
Utica, New York 13501

MR. CARLIE D. SCOFIELD, Director
Vocational-Technical Department
Gulf Coast Junior College
Jefferson Davis Campus
Handsboro Station
Gulfport, Mississippi 29501

MR. WILLIAM C. VIGGERS
Coordinator, Chemical Tests for
Alcohol Training
Department of Community Colleges
112 West Lane Street
Raleigh, North Carolina 27602

MR. ANDREW J.L. WASKEY, SR.
Coordinator, Adult Distributive Education
Atlanta Area Technical School
1560 Stewart Avenue, S.W.
Atlanta, Georgia 30310

MR. MARCUS D. WILLIAMS
Instructor, Civil Technology
Northwest Mississippi Junior College
Senatobia, Mississippi 38668

MR. MARBEL L. ZICKEFOOSE
Program Manager
Governor's Highway Safety Bureau
922 Quarrier Street
Charleston, West Virginia 25301

REGION II

MR. JAMES R. ARNOLD
Coordinator, Field Services
Traffic Safety Administration
Box 12428, Capitol Station
Austin, Texas 78711

MR. JAMES R. BERRY, Director
Transportation Safety Research
The University of Iowa
Oakdale Campus
Oakdale, Iowa 52319

MR. RUSSELL BROOBERG
Coordinator
Alexandria Area Vocational School
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MR. O. C. BURNELL, Chairman
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APPENDIX E

Regional Workshop Program

VOCATIONAL-TECHNICAL PROGRAMS TO ACCOMMODATE
HIGHWAY SAFETY MANPOWER REQUIREMENTS

REGIONAL

WORKSHOP

PROGRAM

ATLANTA

HOUSTON

SAN FRANCISCO

6/62

Sponsored by

The Center for Vocational and Technical Education
The Ohio State University
Columbus, Ohio

in cooperation with

The United States Department of Transportation
Highway Safety Bureau
Washington, D.C.

PROJECT STAFF

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REGION I

February 9-11, 1971
Riviera Hyatt House
1630 Peachtree Street, N.W.
Atlanta, Georgia

REGION II

February 23-25, 1971
Sheraton-Lincoln Hotel
777 Polk Avenue
Houston, Texas

REGION III

March 9-11, 1971
Californian Hotel
Taylor and O'Farrell Streets
San Francisco, California

WORKSHOP PROGRAM

A.M.	**TUESDAY**	**Staff**
9:00	Welcome and introductions	
9:15	The national problem —the need —trends —why safety standards —need for trained people —Federal, state, and local relationship	Paul F. Hill Harland E. Samson
10:00	Objectives of the conference	Staff
	Role of the participants	Staff
10:15	Coffee break	
10:30	"Highway Safety Manpower Development: Narrow the Sights and Broaden the Vision"	Charles H. Hartman
11:00	Small group discussions: determine participants' functions and concerns	
11:30	Reconvene: discussion—clarify and answer questions	Panel
11:45	Restatement of role of participants —during workshop —after workshop	Staff
12:00	Lunch	
P.M.		
1:15	Presentations—"vehicle" safety areas	
	—Periodic Vehicle Inspection	Consultant
	—Motor Vehicle Registration	Consultant
	—Motorcycle Safety	Consultant
	—School Bus Safety	Consultant
	—Codes and Laws	Consultant
	—Traffic Records	Consultant

2:30	Coffee break	
2:45	Small group discussions: develop recommendations and comments "vehicle" safety areas	
4:30	Adjourn	

A.M. WEDNESDAY

8:30	Summary of recommendations and comments—"vehicle" safety areas	Group Recorders
8:40	Presentations—"driver" safety areas	
	—Driver Education	Consultant
	—Driver Licensing	Consultant
	—Alcohol in Relation to Highway Safety	Consultant
	—Emergency Medical Services	Consultant
	—Traffic Courts—	Consultant
	—Police Traffic Services	Consultant
10:15	Coffee break	
10:30	Small group discussions: develop recommendations and comments concerning "driver" safety areas	
12:00	Lunch	

P.M.

1:15	Summary of recommendations and comments—"driver" safety areas	Group Recorders
1:30	Presentations—"environment" safety areas	
	—Debris Hazard Removal	Consultant
	—Traffic Control Devices	Consultant
	—Highway Design	Consultant
	—Identification and Surveillance	Consultant
	—Pedestrian Safety	Consultant
2:45	Coffee break	

3:00	Small group discussions: develop recommendations and comments—"environment" safety areas	
4:20	Summary of recommendations and comments—"environment" safety areas	Group Recorders
4:30	Adjourn	
7-9	Preview curriculum resource materials on display	Staff

A.M. THURSDAY

8:30	Presentation—program implications —Vocational Education Act —Options for program planning	Harland E. Samson
9:00	Small group discussions: summarize recommendations and conclusions	
10:00	Coffee break	
10:15	Small groups: complete summary	
10:45	Present summary of recommendations and comments	Group Recorders
12:00	Lunch	

P.M.

1:45	Plan of action	Each Consultant
3:30	Coffee break	
3:45	Summary of workshop	Staff
4:00	Evaluation	Staff
4:15	Reimbursement	Staff
4:30	Adjourn	Staff

WORKSHOP OBJECTIVES

1. To determine whether curriculum materials:
   A. are available in satisfactory form and quality to satisfy existing national training needs;
   B. need to be updated or modified before being released for national training needs;
   C. are unacceptable or unavailable and must be developed.
2. To develop in the participating-consultants an awareness of the need for highway safety occupational education programs.
3. To train participating-consultants as resource persons and/or consultants for future national, regional, state or local highway safety conferences or workshops.
4. To provide participant-consultants with information concerning the present national status of occupational education programs related to highway safety.

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY

APPENDIX F

In-Service Materials
Evaluation Forms

EVALUATION

Please complete the following regarding the unit you have just completed. Your ratings and comments should be concerned with the substantive content presented.

Since this assessment is of importance to the project, please complete and return this form as soon as conveniently possible.

DIRECTIONS: On the scale provided please rate each section in this volume. A rating of 1 indicates the section was inadequate. A rating of 4 indicates that the section was adequately presented. Space is provided after each item for any comments or questions. These comments and/or questions could be, but are not necessarily limited to, the strengths and/or weaknesses of each section.

	Inadequate			*Adequate*
1. General Information	1	2	3	4

COMMENTS:

2. Safety Specialist Manpower Requirements	1	2	3	4

COMMENTS:

3. Safety Manpower Survey of Local Governments in the United States	1	2	3	4

COMMENTS:

4. 16 Highway Safety Program Standards	1	2	3	4

COMMENTS:

EVALUATION

Please complete the following regarding the unit you have just completed. Your ratings and comments should be concerned with the substantive content presented.

Since this assessment is of importance to the project, please complete and return this form as soon as conveniently possible.

DIRECTIONS: On the scale provided please rate each section in this volume. A rating of 1 indicates the section was inadequate. A rating of 4 indicates that the section was adequately presented. Space is provided after each item for any comments or questions. These comments and/or questions could be, but are not necessarily limited to, the strengths and/or weaknesses of each section.

	Inadequate			*Adequate*
	1	2	3	4
1. Periodic Motor Vehicle Inspection				

COMMENTS:

2. Motor Vehicle Registration	1	2	3	4

COMMENTS:

3. Motorcycle Safety	1	2	3	4

COMMENTS:

4. Driver Education 1 2 3 4

COMMENTS:

5. Driver Licensing 1 2 3 4

COMMENTS:

6. Codes and Laws 1 2 3 4

COMMENTS:

7. Traffic Courts 1 2 3 4

COMMENTS:

EVALUATION

Please complete the following regarding the unit you have just completed. Your ratings and comments should be concerned with the substantive content presented.

Since this assessment is of importance to the project, please complete and return this form as soon as conveniently possible.

DIRECTIONS: On the scale provided please rate each section in this volume. A rating of 1 indicates the section was inadequate. A rating of 4 indicates that the section was adequately presented. Space is provided after each item for any comments or questions. These comments and/or questions could be, but are not necessarily limited to, the strengths and/or weaknesses of each section.

	Inadequate			*Adequate*
1. Alcohol in Relation to Highway Safety	1	2	3	4

COMMENTS:

2. Identification and Surveillance of Accident Locations	1	2	3	4

COMMENTS:

3. Traffic Records	1	2	3	4

COMMENTS:

4. Emergency Medical Services	1	2	3	4

COMMENTS:

5. Highway Design, Construction, and Maintenance	1	2	3	4

COMMENTS:

EVALUATION

Please complete the following regarding the unit you have just completed. Your ratings and comments should be concerned with the substantive content presented.

Since this assessment is of importance to the project, please complete and return this form as soon as conveniently possible.

DIRECTIONS: On the scale provided please rate each section in this volume. A rating of 1 indicates the section was inadequate. A rating of 4 indicates that the section was adequately presented. Space is provided after each item for any comments or questions. These comments and/or questions could be, but are not necessarily limited to, the strengths and/or weaknesses of each section.

	Inadequate			*Adequate*
1. Traffic Control Devices	1	2	3	4

COMMENTS:

2. Pedestrian Safety	1	2	3	4

COMMENTS:

3. Police Traffic Services	1	2	3	4

COMMENTS:

4. Debris Hazard Control and Cleanup	1	2	3	4

COMMENTS:

5. School Bus Safety	1	2	3	4

COMMENTS:

APPENDIX G

Workshop Evaluation Instrument—Phase One

The Center for Vocational and Technical Education
The Ohio State University
Columbus, Ohio

Vocational-Technical Programs to Accommodate Highway Safety Manpower Requirements—Regional Workshop

Instructions: Please provide the following information for our files.
All responses will be held in strict confidence.

Name _____
(last) (first) (middle initial)

Present Job Title _____

Mailing Address
Organization _____

Street _____

City _____ State _____ — _____
(Zip)

For each item, 1-7, please write (on the line to the left) the numbers of the most appropriate answers.

_____ 1. Age
1. 35 or under
2. 36-45
3. 46-55
4. 56-65
5. 66 and over

_____ 2. Sex
1. Male
2. Female

_____ 3. Present employer
1. County Government
2. State Government
3. Federal Government
4. Private Research Foundation
5. Private Business and Industry
6. Private Business College
7. Local School System
8. Area Vocational Technical School
9. Community College or Technical Institute
10. College or University
11. Self-employed
12. Other _____
(specify)

_____ 4. My primary duty is:

1. Consulting
2. Teaching at the graduate level
3. Teaching at the undergraduate level
4. Research and development
5. Curriculum development
6. Supervision
7. Administration
8. Teaching and research
9. Teaching and administration
10. Consulting and teaching
11. Consulting and research
12. Supervision and administration
13. Other _____
(specify)

_____ 5. The area of specialization in which I am currently working is:

1. Agriculture
2. Business and Office
3. Distributive
4. Guidance
5. Health Occupations
6. Home Economics
7. Industrial Arts
8. New and Related Services
9. Technical Education
10. Trade and Industrial
11. Vocational Education
12. Academic
13. Other _____
(specify)

_____ 6. *NATIONAL* professional organizations or groups of which I am a member:

1. Adult Education Association
2. American Association of Curriculum Development
3. American Association of Junior Colleges
4. American Association of School Administrators
5. American Association of University Professors
6. American Educational Research Association
7. American Home Economics Association
8. American Industrial Arts Association
9. American Personnel and Guidance Association
10. American Technical Education Association
11. American Vocational Association
12. American Vocational Education Research Association
13. National Association for State Directors of Vocational Education
14. National Association for Teacher Education
15. National Association of Industrial Teacher Educators
16. National Association of Secondary School Principals
17. National Business Education Association
18. National Education Association
19. National Society for Study of Education
20. National Vocational Agricultural Teachers' Association
21. Others not listed: _____

_____

_____

_____ 7. Highest degree completed:

1. Associate
2. Bachelors
3. Masters
4. Education Specialist
5. Doctorate
6. None of these

_____ 8. The following are acceptable and legitimate reasons for attending professional meetings. Please check each reason you have for attending this meeting.

Objective

_____ 1. Contact experts in the field.
_____ 2. Identify employment opportunities.
_____ 3. Recruit new personnel or identify potential employees.
_____ 4. Identify opportunities for additional study.
_____ 5. Maintain social—professional connections.
_____ 6. Get a change from the job routine, rest, or relax.
_____ 7. Identify and analyze problems, or get new ideas.
_____ 8. Learn about new developments in a specific discipline.
_____ 9. Learn more about the total vocational program.
_____ 10. Learn about new resources and materials.
_____ 11. Learn about the services of ERIC at The Center.
_____ 12. Conduct personal or professional business.

The primary objectives of this conference are listed below. We hope that this activity will be meaningful for you, and that upon its completion you will be able to:

1. Develop or update highway safety occupational programs.

2. Identify problems in programs you have implemented or revised.

3. Promote highway safety occupational programs.

4. Understand the objectives and long range plans of the National Highway Safety Bureau in Manpower Development.

5. Make recommendations for highway safety occupational education program materials.

6. Identify resource personnel for future program development.

7. Evaluate existing highway safety related training programs, training materials, manpower needs, student resources, and availability of training funds.

8. Identify at least ten highway safety related occupations that have the greatest potential in terms of priority need and viability.

9. Identify overall priority training needs with recommendations to meet these needs by (1) modifying existing programs and training materials, or (2) developing new programs and curriculum materials.

If The Center is to be effective in its work of improving and expanding Vocational and Technical Education, it must have a systematic means of evaluating its activities. You will be provided an opportunity to assess the achievement of both the short-term and long-term goals of this activity by responding to instruments prepared especially for those purposes. One evaluation will be made at the close of the conference with the second to be a follow-up study conducted approximately one year later.

APPENDIX H
Workshop Evaluation Instrument—Phase Two

The Center for Vocational and Technical Education
The Ohio State University
Columbus, Ohio

Vocational-Technical Programs to Accommodate Highway Safety Manpower Requirements—Regional Workshop

Your Name _____

1. Prior to your attending this conference, you checked certain reasons for your attendance. Please check those items you have been able to accomplish, whether or not they were your original reasons.

Accomplished

_____ 1. Contact experts in the field.
_____ 2. Identify employment opportunities.
_____ 3. Recruit new personnel or identify potential employees.
_____ 4. Identify opportunities for additional study.
_____ 5. Maintain social—professional connections.
_____ 6. Get a change from the job routine, rest, or relax.
_____ 7. Identify and analyze problems, or get new ideas.
_____ 8. Learn about new developments in a specific discipline.
_____ 9. Learn more about the total vocational program.
_____ 10. Learn about new resources and materials.
_____ 11. Learn about the services of ERIC at The Center.
_____ 12. Conduct personal or professional business.

2. Please rate this activity by circling the number which indicates your impression of the conference. Circling **1** indicates a rating of poor, circling **5** indicates a rating of excellent.

	Poor				*Excellent*
1. Speakers' knowledge of subject.	1	2	3	4	5
2. Speakers' stimulation of intellectual curiosity.	1	2	3	4	5
3. Relationship of speakers' presentations to topics.	1	2	3	4	5
4. Facilities.	1	2	3	4	5
5. Transportation.	1	2	3	4	5
6. Value of materials presented.	1	2	3	4	5
7. Level at which presented.	1	2	3	4	5
8. Relevance of content.	1	2	3	4	5
9. Time to react to topics.	1	2	3	4	5
10. Conference planning and organization.	1	2	3	4	5
11. Length of conference day.	1	2	3	4	5
12. Clarity of conference purposes.	1	2	3	4	5
13. Reasonableness of conference objectives.	1	2	3	4	5
14. Balance between presentations and group work sessions.	1	2	3	4	5
15. Group participation in work sessions.	1	2	3	4	5
16. Expression of individual ideas.	1	2	3	4	5

3. Please indicate the degree to which you were able to achieve the short-term goals as specified objectives of this conference. Circling **1** indicates the objective was relatively unachieved. Circling **5** indicates that the objective was completely achieved.

	Unable to Achieve				*Fully Achieved*
1. Develop or update highway safety occupational programs.	1	2	3	4	5
2. Identify problems in programs you have implemented or revised.	1	2	3	4	5
3. Promote highway safety occupational programs.	1	2	3	4	5
4. Understand the objectives and long range plans of the National Highway Safety Bureau in Manpower Development.	1	2	3	4	5
5. Make recommendations for highway safety occupational education program materials.	1	2	3	4	5
6. Identify resource personnel for future program development.	1	2	3	4	5
7. Evaluate existing highway safety related training programs, training materials, manpower needs, student resources, and availability of training funds.	1	2	3	4	5
8. Identify at least ten highway safety related occupations that have the greatest potential in terms of priority need and viability.	1	2	3	4	5
9. Identify overall priority training needs with recommendations to meet these needs by (1) modifying existing programs and training materials, or (2) developing new programs and curriculum materials.	1	2	3	4	5

4. Would you recommend to others that they attend a similar Center-sponsored activity?

_____ Yes

_____ No

5. Did you attend this activity at your own personal expense?

_____ Yes

_____ No

6. Would you attend another similar activity at your own expense?

_____ Yes

_____ No

APPENDIX I

Personal Assessment Inventory Instrument

PERSONAL ASSESSMENT INVENTORY

DIRECTIONS: Please appraise what you feel is your present knowledge of the highway safety related topics listed below. Circle the number which indicates your degree of present knowledge.

	Very little knowledge	Little knowledge	Some knowledge	Much knowledge	Very highly knowledgeable
1. National Traffic and Motor Vehicle Safety Act of 1966	1	2	3	4	5
2. Highway Safety Act of 1966	1	2	3	4	5
3. Purposes of the 16 Highway Safety Standards	1	2	3	4	5
4. Four (4) Highway Safety Standards in which most public occupational preparation programs have been directed.	1	2	3	4	5
5. At least five (5) Highway Safety occupations less than B.S. degree in which there is estimated, by recent National surveys to be a manpower shortage within the next five (5) years.	1	2	3	4	5
6. Need for additional Highway Safety occupational preparation programs.	1	2	3	4	5
7. Need for additional curriculum materials for Highway Safety occupational preparation programs.	1	2	3	4	5

Please answer the following question by placing a check (✓) in the appropriate spaces.

8. In your opinion does *adequate manpower data exist* to determine the need for future highway safety occupational preparation programs on each of the following levels?

	Yes	No	*Undecided*
Federal	_____	_____	_____
State	_____	_____	_____
Local	_____	_____	_____

APPENDIX J

Highway Safety Related Occupations

94/95

Motor Vehicle Inspection Specialist

Vehicle Inspection Supervisor

Driver Improvement Specialist

Driver Education Supervisor

Driver Education Teachers' Aide

Driver Licensing Examiner

Traffic Court Administration

Legal Aides

Records Analyst

Alcohol Education Specialist

Alcohol Information Specialist

Rescue Operations Specialist

Emergency Communications Specialist

Highway Design Occupations Specialist

Highway Safety Engineering Aide

Traffic Management Specialist

Traffic Supervisor Specialist

Traffic Patrol Supervisors

Speed Detection Specialist

Crossing Guards

Hazard and Safety Investigator

School Bus Transportation Coordinator

Pollution Control Technician

Land Use Specialist

APPENDIX K

Participating-Consultants' Tentative Plan of Action Form

TENTATIVE PLAN OF ACTION

Name:
Position:
Institution or Agency:
If Institution, Total Institution Head Count Enrollment: _____

What are your tentative plans for expanding, updating, developing and/or deleting occupational preparation and in-service programs for highway safety in your area?

Please list.
(If additional space is required please use back of page.)

Short Range (within 1 year)

Long Range (within next 5 years)

What are the major problems and barriers you foresee in attempting to expand, update, develop and/or delete occupational preparation and in-service programs in highway safety?

What kinds of assistance do you need to overcome these problems and barriers?

Other comments pertaining to your plans or ability to assist with manpower development in highway safety:

BIBLIOGRAPHY

CURRICULUM INSTRUCTIONAL MATERIALS

Bibliographical entries followed by an ED number in parenthesis are generally available in hard-copy or microfiche through the Educational Resources Information Center (ERIC). This availability is indicated by the abbreviations MF for microfiche and HC for hard copy. Order by ED number from the ERIC Document Reproduction Service (EDRS), P.O. Drawer O, Bethesda, Maryland 20014. Payment must accompany orders totaling less than $10.00.

ERIC order numbers for some of the bibliographic entries are not currently available but will appear in the issue of *Research in Education* (RIE), *Abstracts of Instructional Materials in Vocational and Technical Education* (AIM), and *Abstracts of Research and Related Materials in Vocational and Technical Education* (ARM) noted in parenthesis.

RIE subscriptions may be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, $21.00 a year (domestic), single copies $1.75.

AIM and ARM subscriptions are available from The ERIC Clearinghouse, The Center for Vocational and Technical Education, The Ohio State University, 1900 Kenny Road, Columbus, Ohio 43210 (Each published quarterly, one year $11.00, two years $18.00, three years $27.00).

EMERGENCY MEDICAL TECHNOLOGY

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